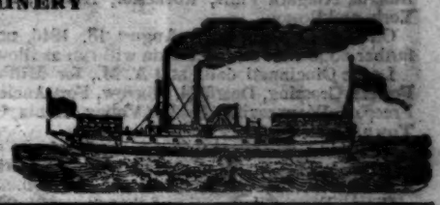
AMERICAN RAILROAD JOURNAL,

AND GENERAL ADVERTISER

FOR RAILROADS, CANALS, STEAMBOATS, MACHINERY AND MINES.



ESTABLISHED 1831.

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AMERICAN RAILROAD JOURNAL.
OFFICE AT THE FRANKLIN HOUSE,
105 Chestnut Street,
PHILADELPHIA, PA.

This is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in these undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.

TERMS.—Five Dollars a year, *in advance.*

RATES OF ADVERTISING.

One page per annum	$125 00
One column "	50 00
One square "	15 00
One page per month	20 00
One column "	8 00
One square "	2 50
One page, single insertion	8 00
One column " "	3 00
One square " "	1 00
Professional notices per annum	5 00

BOSTON AND PROVIDENCE RAILROAD. Passenger Notice. Summer Arrangement. On and after Monday, Sept. 28, 1846, the Passenger Trains will run as follows:

For New York—Night Line, via Stonington. Leaves Boston every day, but Sunday, at 5 p.m.

Accommodation Trains, leave Boston at 7½ a.m. and 3½ p.m., and Providence at 8 a.m. and 3½ p.m.

Dedham trains, leave Boston at 9 a.m.; 3 p.m., 5½ p.m., and 10½ p.m. Leave Dedham at 8 a.m. and 4½ and 9 p.m.

Stoughton trains, leave Boston at 11½ a.m. and 4·10 p.m. Leave Stoughton at 8 a.m. and 2½ p.m.

All baggage at the risk of the owners thereof.

31 1y W. RAYMOND LEE, *Sup't.*

BRANCH RAILROAD and STAGES CONNECTING with the Boston and Providence Railroad.

Stages connect with the Accommodation trains at the Foxboro' Station, to and from Woonsocket. At the Seekonk Station, to and from Lonsdale, R. I. via Pawtucket. At the Sharon Station, to and from Walpole, Mass. And at Dedham Village Station, to and from Medford, via Medway, Mass. At Providence, to and from Bristol, via Warren, R. I.—Taunton, New Bedford and Fall River cars run in connection with the accommodation trains.

PHILADELPHIA AND READING RAILROAD.—Passenger Train Arrangement for

1847.

A Passenger Train will leave Philadelphia and Pottsville daily, except Sundays, at 9 o'clock A. M.

The Train from Philadelphia arrives at Reading at 12 18 M.

The Train from Pottsville arrives at Reading at 10 43 A. M.

Fares.	Miles.	No. 1.	No. 2.
Between Phila. and Pottsville,	92	$3·50 and	$3·00
" " Reading,	58	2·25 and	1·90
" Pottsville "	34	1·40 and	1·20

Five minutes allowed at Reading; and three at other way stations.

Passenger Depot in Philadelphia corner of Broad and Vine streets. 8tf

LEXINGTON AND OHIO RAILROAD. Trains leave Lexington for Frankfort daily, at 5 o'clock a.m., and 2 p.m.

Trains leave Frankfort for Lexington daily, at 8 o'clock a.m. and 2 p.m. Distance, 28 miles. Fare $1·25.

On Sunday but one train, 5 o'clock a.m. from Lexington, and 2 o'clock p.m. from Frankfort.

The winter arrangement (after 15th September to 15th March) is 6 o'clock a.m. from Lexington, and ma. 9. from Frankfort, other hours as above.

351y

BOSTON AND MAINE RAILROAD. Upper Route, to Portland and the East.

SUMMER ARRANGEMENT,
April 1, 1847.

PORTLAND TRAINS.
Leave Boston at 7 A.M. and 2½ P.M.
Leave Portland at 7½ A.M. and 3 P.M.

GREAT FALLS TRAIN.
Leave Boston at 5 P.M.
Leave Great Falls at 6½ A.M.

HAVERHILL TRAINS.
Leave Boston at 11½ A.M. and 6·20 P.M.
Leave Haverhill at 6½ A.M. and 4½ P.M.

READING TRAINS.
Leave Boston at 8½ A.M. and 8½ P.M.
Leave Reading at 6 A.M. and 1½ P.M.

MEDFORD BRANCH TRAINS.
Leave Boston at 7½, 11½ A.M., 2½, 5½, 7 P.M.
Leave Medford at 6½, 8 A.M., 1½, 4½, 6 P.M.

The Depot in Boston is on Haymarket Square.

Passengers are not allowed to carry Baggage above $50 in value, and that *personal*, unless notice is given, and an extra amount paid, at the rate of the price of a Ticket for every $500 additional value.

1y31 CHAS. MINOT, *Sup't.*

SUMMER ARRANGEMENT.—NEW YORK AND ERIE RAILROAD LINE, from April 1st until further notice, will run daily (Sundays excepted) between the city of New York and Middletown, Goshen, and intermediate places, as follows:

FOR PASSENGERS—
Leave New York at 7 A.M. and 4 P.M.
" Middletown at 6½ A.M. and 5½ P.M.

FARE REDUCED to $1 25 to Middletown—way in proportion. Breakfast, supper and berths can be had on the steamboat.

FOR FREIGHT—
Leave New York at 5 P.M.
" Middletown at 12 M.

The names of the consignee and of the station where to be left, must be distinctly marked upon each article shipped. Freight not received after 5 P. M. in New York.

Apply to J. F. Clarkson, agent, at office corner of Duane and West sts. H. C. SEYMOUR, Sup't. March 25th, 1846.

Stages run daily from Middletown, on the arrival of the afternoon train, to Milford, Carbondale, Honesdale, Montrose, Towanda, Owego, and West; also to Monticello, Windsor, Binghamton, Ithaca, etc., etc. Agent on board. 13 tf

NORWICH AND WORCESTER RAILROAD. Summer Arrangement. Change of Hours. Commencing on Wednesday, April 21, 1847.

Accommodation Trains, daily, (except Sunday.) Leave Norwich, at 6 a. m., and 4½ p. m. Leave Worcester, at 8½ a. m., and 4½ p. m.

☞ The morning Accommodation Trains from Norwich, and from Worcester, connect with the trains of the Boston, and Worcester and Western railroads each way.

The Evening Accommodation Train from Worcester connects with the 2½ p.m. train from Boston.

New York Train via Steamboat—Leave Norwich for Boston, every morning, except Monday, on the arrival of the stamboat from New York, stopping at Norwich and Danielsonville.

Leave Worcester for New York, upon the arrival of the train from Boston, at about 6½ p.m., daily, except Sunday, stopping at Danielsonville and Norwich.

Freight Trains daily each way, except Sunday.—Leave Norwich at 7, and Worcester at 6 30 a. m. Special contracts will be made for cargoes, or large quanties of freight, on application to the superintendent.

☞ *Fares are Less when paid for Tickets than when paid in the Cars.* ☜

32 1y J W. STOWELL, *Sup't*

LITTLE MIAMI RAILROAD.—OPEN TO SPRINGFIELD—Distance 84 miles—connecting at Xinia and Springfield with Messrs. Neil, Moore, & Co's. daily daylight lines of stages going east and north, to Columbus, Zanesville, Wheeling, Cleveland, and Sandusky City, via Urbana, Bellefontaine, Kenton, and the Mad river and lake Erie railroad, or Columdus, Delaware, and the Mansfield and Sundusky City railroad—forming, by these connections, the cheapest and most expeditious route to Buffalo, Niagara Falls, Rochester, Albany, New York, and Boston.

On and after Thursday, August 13, 1846, until further notice, a Passenger train will run as follows:

Leave Cincinnati daily at 9 A. M., for Milford, Foster's Crossing, Deerfield, Morrow, Fort Ancient, Freeport, Waynesville, Spring Valley, Xenia, Old Town, Yellow Springs, and Springfield.

Returning, will leave Springfield at 4 hours 35 minutes A. M. A line of Hacks runs in connection with the Cars, between Deerfield and Lebanon.

FARE—From Cincinnati to Lebanon....$1 00
" " " Xenia..... 1 50
" " " Springfield.. 2 00
" " " Columbus... 4 00
" " " Sundusky city 8 00

The Passenger trains runs in connection with Strader & Gorman's line of Mail Packets to Louisville.

Tickets can be procured at the Broadway Hotel, Dennison House, or at the Depot of the Company, on East Front street.

Further information and through tickets for the Stage lines, may be procured at P. Campbell, Agent on Front street, near Broadway.

The company will not be responsible for baggage beyond 50 dollars in value, unless the same is returned to the conductor or agent, and freight paid at of a passage for every $500 in value over that amount.

The 1¼ P. M. train from Cincinnati, and the 2 40 P. M. train from Xenia, will be discontinued on and after Monday, the 10th instant.

A freight train will run daily.

47tf W. H. CLEMENT, *Sup't.*

BALTIMORE AND OHIO RAILROAD. MAIN STEM. The Train carrying the Great Western Mail leaves Baltimore every morning at 7½ and Cumberland at 8 o'clock, passing Ellicott's Mills, Frederick, Harpers Ferry, Martinsburgh and Hancock, connecting daily each way with—the Washington Trains at the Relay House seven miles from Baltimore, with the Winchester Trains at Harpers Ferry—with the various railroad and steamboat lines between Baltimore and Philadelphia and with the lines of Post Coaches between Cumberland and Wheeling and the fine Steamboats on the Monongahela Slack Water between Brownsville and Pittsburgh. Time of arrival at both Cumberland and Baltimore 5½ P. M. Fare between those points $7, and 4 cents per mile for less distances. Fare through to Wheeling $11 and time about 36 hours, to Pittsburgh $10, and time about 32 hours. Through tickets from Philadelphia to Wheeling $13, to Pittsburgh $12. Extra train daily except Sundays from Baltimore to Frederick at 4 P. M., and from Frederick to Baltimore at 8 A. M.

WASHINGTON BRANCH.

Daily trains at 9 A. M. and 5 P. M. and 12 at night from Baltimore and at 6 A. M. and 5½ P. M from Washington, connecting daily with the lines North, South and West, at Baltimore, Washington and the Relay house. Fare $1 60 through between Baltimore and Washington, in either direction, 4 cents per mile for intermediate distances. s13y1

MANUFACTURE OF PATENT WIRE Rope and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tillers etc., by JOHN A. ROEBLING, *Civil Engineer*, Pittsburgh, Pa.

These Ropes are in successful operation on the planes of the Portage Railroad in Pennsylvania, on the Public Slips, on Ferries and in Mines. The first rope put upon Plane No. 3, Portage Railrord, has now run 4 seasons, and is still in good condition. 2v19 1y

BALTIMORE AND SUSQUEHANNA Railroad.—Reduction of Fare. Morning and Afternoon Trains between Baltimore and York.—The Passenger trains run daily, except Sunday, as follows:

Leaves Baltimore at.....9 a.m. and 3½ p.m.
Arrives at.....9 a.m. and 6½ p.m.
Leaves York at.....5 a.m. and 3 p.m.
Arrives at.....12½ p.m. and 8 p.m.
Leaves York for Columbia at..1½ p.m. and 8 a.m.
Leaves Columbia for York at..8 a.m. and 2 p.m.

FARE.

Fare to York.....$1 50
" Wrightsville.....2 00
" Columbia.....2 12½
Way points in proportion.

PITTSBURG, GETTYSBURG AND HARRISBURG.

Through tickets to Pittsburg via stage to Harrisburg.....$9
Or via Lancaster by railroad.....10
Through tickets to Harrisburg or Gettysburg..3
In connection with the afternoon train at 3½ o'clock, a horse car is run to Green Spring and Owing's Mill, arriving at the Mills at.....5½ p.m.
Returning, leaves Owing's Mills at.....7 a.m.

D. C. H. BORDLEY, *Sup't.*
31 1y Ticket Office, 63 North st.

CENTRAL RAILROAD—FROM SAVANnah to Macon. Distance 190 miles.

This Road is open for the transportation of Passengers and Freight. Rates of Passage, $8 00. Freight—

On weight goods generally... 50 cts. per hundred.
On measurement goods..... 13 cts. per cubic ft.
On brls. wet (except molasses and oil).....$1 50 per barrel.
On brls. dry (except lime)... 80 cts. per barrel.
On iron in pigs or bars, castings for mills, and unboxed machinery..... 40 cts. per hundred.
On hhds. and pipes of liquor, not over 120 gallons.....$5 00 per hhd.
On molasses and oil.....$6 00 per hhd.

Goods addressed to F. WINTER, Agent, forwarded free of commission. THOMAS PURSE,
y40 Gen'l. Sup't. Transportation.

NEW YORK & HARLEM RAILROAD CO.—Winter Arrangement.

On and after Monday, November 23, 1846, the cars will run as follows:

Leave 27th street for 42d street, Deaf and Dumb Institute, Yorkville, Harlem Morrianna, and Williams' Bridge, at 7 o'clock a.m. From City Hall for above named places, 2 p.m. [freight train,] 2 30 p.m. 5 p.m. to Morrisiania only.

Leave City Hall for Harlem, Morrisiania, Fordham and Williams' Bridge, at 7 45 a.m., and 10 45 a.m.; 1 15 p.m., 2 p.m. [freight train], 2 30 p.m. and 3 45 p.m.

Leave City Hall for Hunt's Bridge, Bronx, Tuckahoe, Hart's Corners White Plains, Davis' Brook, Unionville and Pleasantville, [Pleasantville 4 miles from Sing Sing,] 7 45 and 10 45 a.m.; 1 15 p.m., 2 p.m. [freight train], and 3 45 p.m.

RETURNING.

Leave Pleasantville, at 8, 10, [freight train], and 11, a.m.; 1 30, and 4, p.m.

Leave White Plains, at 8 12, 10 30, [freight train] and 11 20 a.m.; 1 50, and 4 20, p.m.

Leave Tuckahoe, 8 35, 10 55, [freight train,] and 11 35, a.m.; 2 05, and 4 35, p.m.

Leave Williams' Bridge at 7 45, 8 50 and 11 50 a.m.; 2 10, 4, and 4 50 p.m.

Leave Morrisiania 8 and 9 05 a.m.; 12 05, 2 35, 4 20, 5 05 and 6 p.m.

Leave Yorkville, at 8 12 a.m.; 4 35 and 6 15 p.m.

SUNDAY ARRANGEMENTS.

Leave City Hall for Pleasantville and intermediate places, at 7 45 a.m.; 1 15 and 3 p.m.

Leave Pleasantville for City Hall, at 8 a.m.; 11, and 3 15 p.m.

Leave City Hall for Williams' Bridge and intermediate places, 10 45 a.m.; 2 30 p.m.

Leave Williams' Bridge for City Hall, at 8 50 and 11 50 a.m.; 1, 3 45 and 4 05 p.m. 1y49

PHILADELPHIA, WILMINGTON & BALTIMORE RAILROAD.—1847.

Summer Arrangement.

Philadelphia for Baltimore...8 a.m. and 10 p.m.
Baltimore for Philadelphia...9 a.m. and 8 p.m.
Connecting with Mail Lines North, South & West.

On Sundays, only the 10 P. M. Lines run.

The Boat Lines, via Newcastle & Frenchtown R.R. Leave Philadelphia at 3½ p.m. } No line on Sun-
Leave Baltimore at 3 p.m. } day.

Accommodation Trains between Philadelphia & Wilmington.—Philadelphia to Wilmington, 8 a.m., *mail*, 12½ p.m., 4 p.m., 7 p.m., 10 p.m. *mail*. Wilmington to Philadelphia, 7 a.m., 1 p.m., *mail*, 4½ p.m., 7 p.m., 12½ a.m., *night mail*.

J. R. TRIMBLE,
2tf *Engineer and General Superintendent.*

GEORGIA RAILROAD. FROM AUGUSTA to ATLANTA—171 MILES. AND WESTERN AND ATLANTIC RAILROAD FROM ATLANTA TO OOTHCALOGA, 80 MILES.

This Road in connection with the South Carolina Railroad and Western and Atlantic Railroad now forms a continuous line, 388 miles in length, from Charleston to Oothcaloga on the Oostenaula River, in Cass Co., Georgia.

RATES OF FREIGHT.		Between Augusta and Oothcaloga and Dalton. 250 miles.	Between Charleston, Oothcaloga and Dalton. 386 miles.
1st class.	Boxes of Hats, Bonnets, and Furnature, per cubic foot.....	$0 16	$0 26
2d class.	Boxes and Bales of Dry Goods, Sadlery, Glass, Paints, Drugs and Confectionary, per 100 lbs.	1 00	1 50
3d class.	Sugar, Coffee, Liquor, Bagging, Rope, Cotton Yarns, Tobacco, Leather, Hides, Copper, Tin, Feathers, Sheet Iron, Hollow Ware, Castings, Crockery, etc.	0 60	0 85
4th class.	Flour, Rice, Bacon, Pork, Beef, Fish, Lard, Tallow, Beeswax, Bar Iron, Ginseng, Mill Gearing, Pig Iron, and Grindstones, etc.....	0 45	0 70
	Cotton, per 100 lbs.....	0 45	0 65
	Molasses, per hogshead.	8 50	13 50
	" " barrel....	2 00	3 25
	Salt per bushel.....	0 17	
	Salt per Liverpool sack..		95
	Ploughs, Corn Shellers, Cultivators, Straw Cutters, Wheelbarrows...	0 75	1 37

German or other emigrants, in lots of 20 or more, will be carried over the above roads at 2 cents per mile.

Goods consigned to S. C. Railroad Co. will be forwarded free of commissions. Freight may be paid at Augusta, Atlanta, or Oothcaloga.

J. EDGAR THOMSON,
Ch. Eng. and Gen. Agent.
Augusta, Sept. 2d, 1846. s44 1y

THE WESTERN AND ATLANTIC Railroad.—This Road is now in operation to Oothcaloga, a distance of 80 miles, and connects daily (Sundays excepted) with the Georgia Railroad.

From Kingston, on this road, there is a tri-weekly line of stages, which leave on the arrival of the cars on Tuesday, Thursday and Saturday, for Warrenton, Huntsville, Decatur and Tuscumbia, Alabama, and Memphis, Tennessee.

On the same days, the stages leave Oothcaloga for Chattanooga, Jasper, Murfreesborough, Knoxville and Nashville, Tennessee.

This is the most expeditious route from the east to any of these places.

CHAS. F. M. GARNETT,
Chief Engineer.
Atlanta, Georgia, April 16th, 1846. 1y1

CENTRAL AND MACON AND WESTern Railroads, Ga.—These Roads with the Western and Atlantic Railroad of the State of Georgia, form a continuous line from Savannah to Oothcaloga, Ga., of 371 miles, viz:

	Miles.
Savannah to Macon—Central Railroad	190
Macon to Atlanta—Macon and Western	101
Atlanta to Oothcaloga—Western and Atlaniic	80

Goods will be carried from Savannah to Atlanta and Oothcaloga, at the following rates, viz:

	To Atlanta.	To Oothcaloga.
On Weight Goods—Sugar, Coffee, Liquor, Bagging, Rope, Butter, Cheese, Tobacco, Leather, Hides, Cotton Yarns, Copper, Tin, Bar & Sheet Iron, Hollow Ware & Castings	$0 50	$0 75
Flour, Rice, Bacon in Casks or boxes, Pork, Beef, Fish, Lard, Tallow, Beeswax, Mill Gearing, Pig Iron and Grind Stones	0 50	0 62½
On Measurement Goods—Boxes of Hats, Bonnets and Furniture, per cubic foot	0 20	0 26
Boxes and Bales of Dry Goods, Saddlery, Glass, Paints, Drugs and Confectionary, per cubic foot	0 20 pr. 100 lbs.	35
Crockery, per cubic foot	0 15 " "	35
Molasses and Oil, per hhd., (smaller casks in proportion).	9 00	12 50
Ploughs, (large,) Cultivators, Corn Shellers, and Straw Cutters, each	1 25	1 50
Ploughs, (small,) and Wheelbarrows	0 80	1 05
Salt, per Liverpool Sack	0 70	0 95

Passage—Savannah to Atlanta, $10; Children, under 12 years of age, half price, Savannah to Macon, $7.

☞ Goods consigned to the subscriber will be forwarded free of Commissions.

☞ Freight may be paid at Savannah, Atlanta or Oothcaloga.

F. WINTER, *Forwarding Agent, C. R. R.*
Savannah, Aug. 15th, 1846. 1y34

GREAT SOUTHERN MAIL LINE! VIA Washington city, Richmond, Petersburg, Weldon and Charleston, S. C., direct to New Orleans. The only Line which carries the Great Southern Mail, and Twenty-four Hours in advance of Bay Line, leaving Baltimore same day.

Passengers leaving New York at 4½ P.M., Philadelphia at 10 P.M., and Baltimore at 6½ A.M., proceed without delay at any point, by this line, reaching Richmond in *eleven*, Petersburg in *thirteen and a half hours*, and Charleston, S. C., in *two days* from Baltimore.

Fare from Baltimore to Charleston.....$21 00
" " " Richmond..... 6 60

For Tickets, or further information, apply at the *Southern Ticket Office*, adjoining the *Washington Railroad Office*, Pratt street, Baltimore, to
1y14 STOCTON & FALLS, Agents.

SOUTH CAROLINA RAILROAD.—A Passenger Train runs daily from Charleston, on the arrival of the boats from Wilmington, N. C., in connection with trains on the Georgia, and Western and Atlantic Railroads—and by stage lines and steamers connects with the Montgomery and West Point, and the Tuscumbia Railroad in N. Alabama.

Fare through from Charleston to Montgomery daily.....$26 50
Fare through from Charleston to Huntsville, Decatur and Tuscumbia..... 22 00

The South Carolina Railroad Co. engage to receive merchandize consigned to their order, and to forward the same to any point on their road; and to the different stations on the Georgia and Western and Atlantic railroad; and to Montgomery, Ala., by the West Point and Montgomery Railroad.
1y25 JOHN KING, Jr, *Agent.*

BACK VOLUMES OF THE RAILROAD JOURNAL for sale at the office, No. 105 Chestnut street.

FRENCH AND BAIRD'S PATENT SPARK ARRESTER.

TO THOSE INTERESTED IN Railroads, Railroad Directors and Managers are respectfully invited to examine an improved SPARK ARRESTER, recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both passenger and freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air, smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

R. L. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendant Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendant Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburgh and Jackson Railroad, Vicksburgh, Miss.; R. S. Van Rensselaer, Engineer and Sup't Hartford and New Haven Railroad; W. R. M'Kee, Sup't Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Sup't New Jersey Railroad Trans. Co.; J. Elliott, Sup't Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sterns, Sup't Elizabethtown and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Sup't Macon Railroad, Macon, Ga.; J. H. Cleveland, Sup't Southern Railroad, Monroe, Mich.; M. F. Chittenden, Sup't M. P. Central Railroad, Detroit, Mich.; G. B. Fisk, President Long Island Railroad, Brooklyn.

Orders for these Chimneys and Arresters, addressed to the subscribers, care Messrs. Baldwin & Whitney, of this city or to Hinckly & Drury, Boston, will be promptly executed. FRENCH & BAIRD.

N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms. *Philadelphia, Pa., April 6, 1844.*

*** The letters in the figures refer to the article given in the *Journal* of June, 1844. ja45

PATENT HAMMERED RAILROAD, SHIP and Boat Spikes. The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed. JOHN F. WINSLOW, *Agent.*
Albany Iron and Nail Works, Troy, N. Y.

The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Merritt, New York; J. H. Whitney, do.; E. J. Etting, Philadelphia; Wm. E. Coffin & Co., Boston. ja45

MACHINE WORKS OF ROGERS, Ketchum & Grosvenor, Patterson, N. J. The undersigned receive orders for the following articles, manufactured by them of the most superior description in every particular. Their works being extensive and the number of hands employed beinglarge, they are enabled to execute both large and small orders with promptness and despatch.

Railroad Work.

Locomotive steam engines and tenders; Driving and other locomotive wheels, axles, springs & flange tires; car wheels of cast iron, from a variety of patterns, and chills; car wheels of cast iron with wrought tires; axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery

of all descriptions and of the most improved patterns, style and workmanship.

Mill gearing and Millwright work generally; hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

ROGERS, KETCHUM & GROSVENOR,
ja45 Paterson, N. J., or 60 Wall street, N. York.

PATENT RAILROAD, SHIP AND BOAT Spikes. The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York will be punctually attended to.

HENRY BURDEN, *Agent.*

Spikes are kept for sale, at Factory Prices, by I. & J. Townsend, Albany, and the principal Iron merchants in Albany and Troy; J. I. Brower, 222 Water St., New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

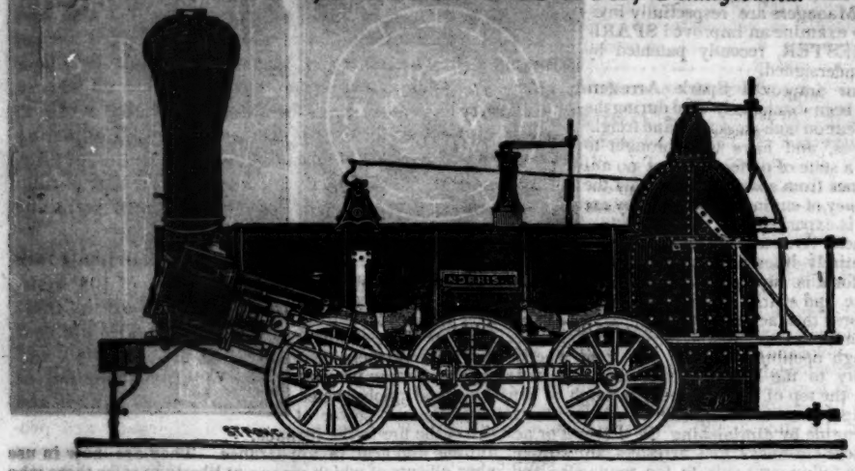
*** Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufcturing so as to keep pace with the daily increasing demand.
ja45

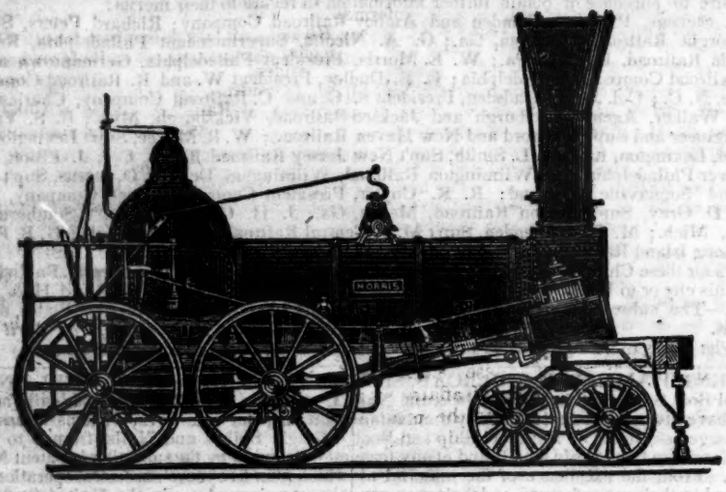
SPRING STEEL FOR LOCOMOTIVES, Tenders and Cars. The Subscriber is engaged in manufacturing Spring Steel from 1½ to 6 inches in width, and of any thickness required: large quantities are yearly furnished for railroad purposes, and wherever used, its quality has been approved of. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address

JOAN F. WINSLOW, *Agent,*
1y Albany Iron and Nail Works.

NORRIS' LOCOMOTIVE WORKS.

BUSH HILL, PHILADELPHIA, Pennsylvania.





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"	2,	14	"	"	"	× 24	"	"
"	3,	14½	"	"	"	× 20	"	"
"	4,	12½	"	"	"	× 20	"	"
"	5,	11½	"	"	"	× 20	"	"
"	6,	10½	"	"	"	× 18	"	"

With Wheels of any dimensions, with their Patent Arrangement for Variable Expansion.

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Also—A lot of land on the canal, west side o Parker st., containing 6000 feet, with the following buildings thereon standing:

Boiler house 50 feet long by 30 feet wide, two stories.

Blacksmith shop, 49 feet long by 20 feet wide.

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Cincinnati and St. Louis Railroad.

The following highly interesting article, is communicated to the *Cincinnati Gazette*, by a correspondent, who is evidently well acquainted with the interests of the West. Although his views upon some points may not be in unison with those entertained by some others, yet we give place to the article, because it contains many facts of general interest. The writer says:

It is known to the readers of your paper that important movements have been had, at many places interested, within the last few months, towards effecting a connection by railroad, between Cincinnati and St. Louis. Until the unexpected refusal of the right of way through Illinois by her Legislature, no serious obstacle was anticipated to the immediate execution of this enterprise, which, from its projecting, enlisted the co-operation of so many enterprising men of both cities and along its contemplated route, that there seemed no reason to doubt its speedy achievement. But the interest of St. Louis and the State of Illinois in the immediate commencement of this work being thus cut off, it becomes a question whether sufficient remain to carry out a part of the original intention. This claims the more consideration now, because a convention, called to decide on the steps to be taken, will convene in a short time at Indianapolis, where matters will be submitted and determined, that must greatly affect the growth and prosperity of Cincinnati, for a series of years, if not for all time to come. This will be my excuse for attempting to direct the attention of the capitalists and business men of that city to this project, which though a subject of deep interest to a portion of Indiana, is one of paramount importance to Cincinnati.

Upwards of twenty years ago, the States of New York and Pennsylvania commenced a contest for the western trade, respectively under the guidance of De Witt Clinton and Dr. Lehman, and directed their efforts to this end towards effecting a communication by canals with the western waters. For several years after it began, no other States seemed disposed to enter the lists with them to compete for this prize. So distrustful, however, were many leading men of both States, as to the benefits promised by these undertakings, that they struggled through great opposition, and that of Pennsylvania only succeeded finally, by being encumbered with expensive branches; adjuncts permitted by its friends in order to bring collateral interests to secure the accomplishment of their main purpose. Chiefly from this cause the early friends of the Pennsylvania Canal have failed to realize their exalted anticipations; while those of the New York and Erie Canal found theirs exceeded, by the immense business which has crowded this work since its completion. This partial success on the part of Pennsylvania, during the first years in which these two canals were in operation, she hoped to render complete through the advantages given her over New York by the more extended term in which her canal would be annually navigable; but before the full effect of this could be tested by experience, both States were compelled to compete for this trade, on disadvantageous terms, with other improvements projected from quarters, which, by geographical position, were supposed to be wholly precluded from entertaining any such pretensions. Unforseen improvements of engines, by which those weighing many tons are made to pass over railroads without injury to them, and with augmented power and speed, has demonstrated the superior adaptation of these to all the purposes of travel and transport. Yankee sagacity was soon perceived availing itself of these improvements, to attract to Boston a portion of the wealth that was pouring into New York as the result of her enterprize; and the Western railroad is constructed at great expense for this purpose, which it fulfils to the great injury of New York City, in depriving her of a large share of the Lake trade.

In the meantime Pennsylvania is driven from the study of latitude and topography, to the adoption of more efficient means to retain a trade to which she had claimed a natural right to give direction, and which she saw centreing at Baltimore over the Baltimore and Ohio Railroad, instead of at Philadelphia over her own improvements, and for this purpose has resolved upon having a speedy connection by railroad between Philadelphia and Pittsburgh. The completion of some and the advanced state of others of the thoroughfares designed to appropriate western trade allows, as well as encourages, a modified policy on the part of those engaged in them, and the Western States are beginning to profit by the rivalry existing and increasing among these various works. The foregoing developement of these successive movements reveals a position of affairs from which can be better understood the motives and purposes of those who are influential in directing the efforts at present making jointly, by many eastern and western states to mark out the channels through which the commerce of particular districts of country shall flow. Eastern capital is seeking investment in Western improvements, with the view of shaping their course so as to direct their traffic to particular cities on the Atlantic; and so as to make it answer the double purpose in its transit thither, of yielding a handsome return where invested, and augmenting the revenues of other and more important thoroughfares. It is to the especial influence which this state of circumstances is exerting over the commercial operations of Indiana, that I propose to invite the consideration of the citizens of Cincinnati.

Indiana is just recovering from the exhaustion, which succeeded the shock that she, in common with the country at large, sustained a few years ago in her financial affairs, and is beginning to direct her energies again towards opening outlets to market for her large surplus productions. Sectional divisions are shaping their efforts for this end in the direction which, from geographical position or other causes, offers the fairest prospect for its speedy accomplishment; and the value of the traffic already conducting on several of these incomplete works has centered capital and enterprise to them from abroad, that have created new and important business relations. New York capital is largely employed in the business of the Wabash and Erie Canal, by which an extended belt of rich country is becoming habituated to look to that city for a market and for its foreign supplies; and the extension of that work to Evansville, provided for in the law adjusting the State debt, must greatly augment this, after making due allowance for that portion of it which will seek the southern terminus of the canal.

Again the Madison and Indianapolis railroad is creeping into the heart of the State, and while it is drawing to itself all the trade west of its extension north, that does not flow into the Wabash river or the Wabash and Erie Canal, its attractive influence is felt as far east as Rush county, from which and Hancock county, branch railroads are projected to connect with the one at present constructing from Shelbyville, in Shelby county, to form a junction with the Madison and Indianapolis railroad at Columbus. This latter road will be completed to Indianapolis the ensuing summer, when the company design to lay another track without delay, a single one being wholly inadequate to the business which, if not diverted, must be thrown upon it. A portion of the business conducted over this road at present reaches or emanates from Cincinnati, but its rapidly augmenting traffic will shortly operate a change in the present manner of conducting it, and enforce upon Madison the impolicy of sharing with Cincinnati a business which she ought to appropriate exclusively to herself.

From Indianapolis north, the unfinished portion of the Central canal will soon be taken up and extended to its junction with the Wabash and Erie canal, as originally designed. This is practicable at a small expense, some of the most expensive parts of the work being already finished. A bill was pending in our Legislature last winter, that provided for giving the northern division of this canal to a company on terms similar to those upon which the State surrendered the White Water canal, and was lost from being made a rider to the Butler bill, from which it was dismounted at too late a period of the session to permit the necessary formalities to be gone through with to secure its passage on its own legs. Unless some other enterprize shall divert the attention of those moving in this matter, our next Legislature will incorporate the Central Canal company, when it is probable the owners of the Wabash and Erie canal, whose revenues would be augmented by this tributary branch, will supply any small deficiency of means necessary to its completion, beyond what will be furnished by the counties through which it will pass.

Through the facilities which will be afforded by these three important works, the Wabash and Erie Canal, the Madison and Indianapolis Railroad, and the Northern Division of the Central Canal when in operation, the trade of a large portion of Indiana, that would under a different state of circum-

stances reach that city, must be diverted from Cincinnati, unless, by some countervailing policy, she can attract it thither. Suitable exertions made at once could probably effect this now, but if delay or indifference shall mark her course in reference to the only mode in which this is practicable, and a railroad fail to be commenced this summer to effect this object, the period is not remote when she will find, that no expenditure of capital or degree of exertion can fully retrieve the loss she must sustain, in having the trade of these large, productive, and growing regions of country directed to other points. We will lean upon the arm that will yield us the most support, and both interest and inclination at present, lead a majority of our citizens to desire to have it proffered from Cincinnati. The present posture of affairs demonstrates that her valuable trade is attracting attention abroad, and if it shall appear that she may pour her wealth into the lap of Cincinnati, upon condition her own resources create the facilities therefor, the broad and deep current that would otherwise set in that direction, will be dispersed into many streams, any one of which may equal that, to flow to that city. A tonnage estimated to be worth $2,500,000 passed last year over the Wabash and Erie Canal from Lafayette to Toledo, no part of which probably paid her tribute, in any way; and that of the Madison and Indianapolis Railroad much short of what it might be made to do, and that to flow through the northern extension of the Wabash and Erie Canal, will pay still less.

The last six months has witnessed the transfer of a large portion of the stock of the Madison and Indianapolis Railroad to the hands of Eastern capitalists; and with the eagerness to command the stock of this road, will come the desire to share and control the business done on it. With a trade adequate to the capacity of a double track railway from Madison to the interior of the State, the capital and enterprize that will be attracted to that place will make it no contemptible rival of Cincinnati for the trade of Indiana; and to the commercial relations that will ramify thence, on a large portion of the State, may come to be added in time, a State pride that shall jointly raise us out of our present anomalous position of a state without a commercial metropolis.

The cities in the United States that have become preeminent from their wealth and prosperity, are so in the proportion in which, they have been distinguished for their public enterprize, in making themselves the focus, from which have radiated numerous artificial channels of commerce, which have placed them in connection with remote districts of country with which they have no natural associations. Remark the policy that has been pursued by the city of Boston. Instead of waiting until the urgent wants of her neighbors should compel them to create some facility of reaching a market, and of relying upon some natural advantages to co-operate with their necessities in dictating its direction, she has anticipated their tardy movements, and regarded neither mountain barrier, intercepting watercourse, nor remoteness of position, when the end to be achieved, was the commerce of a State. It is to be seen whether Cincinnati will profit by the lessons of thrift, taught by such enterprising cities, to the extent which her present advantages will admit. She has the power, and should have the sagacity, to turn much of the internal commerce of Indiana from the channels to which it is at present tending, in a direction to subserve her exclusive interests and on terms that would not be disregarded by any other city in the Union if made as practicable of acceptance.

Let the business men of that city give a glance to the map of Indiana, and remark the region of country along the route of the Saint Louis and Cincinnati Railroad—observe its rectangular connection with all the important inland communications through the State, at points remote from their outlets, and they canot fail to see that these may all be made tributary to that main channel, instead of becoming its competitors. The immense amount of agricultural products that accumulate along the Wabash River, and the Wabash and Erie Canal, during periods of interrupted navigation, would seek a market over this road; and a judicious encouragement of this trade, at such times, would secure a large portion of it at others, when no obstruction to their navigation existed.—The same remark will apply to the business of the Madison and Indianapolis Railroad, for the inducements presented by a more enlarged market, would attract the business of this road to Cincinnati in preference to Madison; especially if the additional encouragement were given to this trade, of low charges for transportation over the Saint Louis and Cincinnati Railway. The trade to be done on the Central Canal, running north from Indianapolis, in the absence of a direct and cheap mode of access to Cincinnati, will be divided between the Wabash and Erie Canal, and the Madison and Indianapolis Railroad.

If the trade which might be invited from all these sources, does not seem to be worth the effort, necessary on the part of Cincinnati to secure it, she must estimate it below its actual value or esteem herself incompetent to the undertaking. But the character of her citizens precludes the first inference; and a doubt of her ability to accomplish it, can only result from a failure to engage an interest, as general, in the undertaking, as the benefits waiting upon its accomplishment, must be diffused among all classes of her citizens.

All along the route of this contemplated railroad through Indiana, a determination has been evinced to carry it forward; but the impetus to this feeling was given by the preliminary movements had at either terminus of the road, when the subject was first agitated. It was understood then, as it is now, by those living at intermediate points, that Cincinnati and St. Louis had the deepest interest in the achievement of this undertaking; and every thing indicated their readiness to make that interest, and their ability, the measure of their efforts for its accomplishment; and hence the simultaneous movements in so many quarters, to testify a willingness to co-operate with them, for this purpose. Those directly interested in this State, in the success of this measure, will be the last to abandon it, as they were the last to take hold of it; and if the city of Cincinnati shall come up to the work prepared to act in the way her interests demand, she will be met by a corresponding determination; and this noble enterprise, fraught with immense benefits, social, intellectual, and pecuniary, to millions of human beings, will have had its origin and completion, within the compass of a few months. That this may be the result, must be the ardent desire of every one concerned, that owns the impulse of an honest devotion to Western independence, and, after the welfare of our common country, holds the peculiar interests of the West nearest his heart.

CENTRAL INDIANA.

Indianapolis, May 7, 1847.

ENGLISH AND IRISH RAILWAYS COMPARED.

The following comparison of cost and passengers is taken from Herapath.

The lines already completed in Ireland are the Ulster, Dublin, and Drogheda and Kingstown, and, in part, the Great Southern and Western and Midland Great Western; the following table shows the cost per mile of these, and also of a similar number in England of a corresponding character:

	Cost per mile.
ENGLISH.	
London and Croydon,	£80,400
Eastern Counties,	46,355
London and Brighton,	56,981
York and North Midland,	25,924
Norfolk,	13,150
IRISH.	
Dublin and Kingstown,	59,122
Dublin and Drogheda,	15,652
Ulster,	14,334
Great Southern and Western,	13,000
Midland Great Western,	10,000

Thus, then, it appears, the cost of construction in Ireland is invariably far less than in England; the average cost, in fact, of the lines now being made will be about £14,000 per mile; whereas, in England, it is about £25,000; the difference arising principally in the enormous sums here paid as compensation to landowners, and the much higher price of labor.

The next point for consideration is traffic. Now, it is well known that the revenue of a railway is derived principally from four sources, viz: the carriage of passengers, minerals, agricultural produce, and manufactured goods. The question then arises, in what degree does Ireland possess these?

Passengers. — The accompanying table shows the number of passengers per mile per annum on the lines already opened as compared with some of those in England:

	Number of Miles.	Number of Passengers per annum.	Number of Passengers per mile.
ENGLISH.			
London and Croydon,	10	768,031	76,803
London and Brighton,	56	786,386	14,078
Great Western,	220	1,993,088	9,014
IRISH.			
Dublin and Kingstown,	6	2,284,720	380,786
Ulster,	25	244,950	21,798
Dublin and Drogheda,	35	566,492	16,185

The above figures are taken from the official documents of 1845. In 1846, the number of passengers on the London and North Western was 1,008,000, and on the Drogheda and Ulster lines together, 1,111,422; the mileage of the former being more than double that of the two latter! Thus then, so far from there being as many have supposed, a lack of passengers, it appear that the number who at paesent use the rail in Ireland, is actually greater in proportion than that in England, where, from the extension of the system, it has become almost the sole medium of transport.

Bridges for Railroads--Whipple's Treatise.

We lately published a communication, from the pen of an able engineer, in relation to a pamphlet of 46 pages, by *Mr. S. Whipple*, of Utica, N. York. We then intimated that we should again refer to the subject. Having given it a hasty perusal, we find it well worthy of the commendations of our correspondent, "E. F. J."—and, by way of illustration, we give a few pages of the work, referring more particularly to *Iron Bridges*.

The first part of the work is descriptive of different spans and plans of construction, illustrated by diagrams, showing the effect of different plans of *bracing*—which makes the work practically useful to every man who has any interest in the construction, use, or durability of bridges; we therefore, with great pleasure, recommend the work, and its promised sequel, to the attention of engineers, bridge-builders and railroad companies. Without knowing positively, we presume it may be had of the author, S. WHIPPLE, C. E., *and Mathematical Instrument Maker*, Utica, N. Y.

The Title-page of the work is as follows, viz:—

An Essay on Bridge Building: containing Analyses and Comparisons of the Principal plans in Use, with Investigations as to the Best Plans and Proportions, and the Relative Merits of Wood and Iron, for Bridges. By S. Whipple, C. E., Mathematical and Philosophical Instrument Maker, Utica, N. Y., 1847.

On page 38 and section 33d, he says:—

"Having decided upon the most suitable forms and proportions for bridge trusses, I will say a few words in regard to the material best adapted to the purposes of bridge building. We have seen that the materials in a bridge truss, are principally subjected to two kinds of action, that of tension and of thrust. The lateral action should always be avoided in the main parts of the truss. It is obvious then, that those materials best calculated to resist these kinds of force respectively, should, when practicable, without the sacrifice of economy, be employed in the situations where those forces are respectively exerted.

For instance, when the diagonals act by tension, the top rib, (or the arch, in case of the arched truss,) and the verticals, should be composed of the material best adapted to sustain a crushing force, while the lower rib or stringer, and the diagonals, should be of the best material for supporting tension.

Wood and iron, as before remarked, are the only materials that have been employed in bridge building, (I refer only to the superstructures,) to an extent worthy of notice, and it seems reasonable to conclude, that on these we must place our dependence.

Cast iron will resist a greater crushing force than any other substance, whose cost will admit of its being used as a building material. Steel has a greater power of resistance, but its cost precludes its use as a material for building. Wrought iron resists nearly equally with cast iron, but its cost is twice as great, which gives the cast iron entirely the advantage. On the other hand, wrought iron resists a tensile force nearly 4 times as well as cast iron, and 12 or 15 times as well as wood, bulk for bulk.

Not only are these the strongest materials, but they are also the most durable. In fact, with proper precautions, they may be regarded as imperishable.

It would seem, then, that wrought iron for tension, and cast iron for thrust, were the *best* materials that could be employed for building bridges. But wood, though greatly inferior in strength and durability, is much cheaper and lighter, so that making up with quantity for its want of strength, and by frequent renewals for its want of durability, it has hitherto been almost universally used in this country for bridge building, and in the scarcity of means, and the unsettled state of things in a new country, where improvements are necessarily, to a great extent, of a temporary character, this is undoubtedly the most economical material for the purpose.

But it is believed that the state of things has now assumed that degree of settled permanency in many parts of this country, and available means have accumulated to that extent which renders it consistent with true economy to give a character of greater permanence to our improvements, and in the erection of important works, to have more reference to durability, even at the cost of a greater present outlay; and in view of the subject it seems highly probable that one of the channels in which this tendency of things will develope itself, will be in the extensive employment of iron in the construction of important bridges. With this impression, I proceed to some general comparisons as to the relative cost and economy of wood and iron as materials for bridges;

XXXIV. Cast iron resists a crushing force some 20 times as much as wood, consequently it will only require one-twentieth as much of the former to resist a given force, provided it can be put into a form in which its liability to flexure and yielding laterally, is not greater than that of wood. This can be accomplished, in part, by giving the iron a hollow form, so as to make the diameter of the pieces approximate to an equality with 20 times the same amount of wood, which must generally be used in a simple rectangular or cylindrical form.

Assuming, then, that a cubic foot of cast iron, will do the same work as 15 cubic feet of wood, (after making allowance for the necessary smaller drameter of the iron) we can institute a comparison which would seem, upon the surface, to show the relative economy of the two materials.

A cubic foot of cast iron, manufactured for the work, will cost about $13. 15 cubic feet of wood in a bridge will cost, say $6.—Whence it appears that the cast iron is more than twice as expensive, in the first outlay, for sustaining a crushing force, as wood.

Again, a cubic foot of wrought iron in the work, say 450 lbs., at 7½ cts.—$34.

Wood is about one fifteenth as strong as iron. But about one-half of its fibres must be separated, in order that the other half may be so connected in the construction as to be available to their full strength by tension.—Hence it will take some 30 feet to equal one of iron; for which, say it will cost $12;—showing a difference of a little less than three to one; the average for both kinds of iron, reckoning equal quantities of each, being about 2·6 to 1.

To offset against this, we have the superior durability of the iron, which, as before observed, may be regarded as per-durable, whereas wood requires frequent renewals, at a cost each time equal to the first outlay. Now the first cost of iron is sufficient to provide for the first cost of the wood, and nearly two renewals. Besides this, money, though an inanimate substance, is nevertheless, in these usurious times, made to be exceedingly prolific; insomuch, that with good husbandry, it is found to double itself once in 10 or 12 years, according to the hard face of the lender, and the hard fortune of the borrower.

Assuming 5 per cent. per annum as the net income of money invested, the term of time in which the 1·60 dollars saved in the wooden structure, will require to produce one dollar for renewal, will show the time that wood ought to last, to be equal to iron in economy. 1·60 dollars at compound interest, will yield at 5 per cent. one dollar in less than ten year.

Therefore, if an imperishable iron structure cost 2·6 times as much as one of wood, and the latter last but ten years, and money will net 5 per cent. compound interest, the two materials are nearly on a par as to economy.

Now experience has shown that wooden bridges, unprotected by roofing and siding, seldom last with safety, over eight years, or thereabouts; and the more there be expended to increase the durability, the less surplus capital will be left towards renewals. Hence the iron would seem to have the advantage.

XXXV. But the above comparison is too superficial and general to be entitled to a great deal of confidence, except, perhaps, as regards the sustainlng of a given weight by a simple post, or suspending it by a bar or rod of iron or wood. In the complicated assemblage of pieces, forming the superstructure of a bridge, there are numerous other facts and considerations which materirlly vary the results. 1st, there is a difficulty in connecting pieces of timber in such a manner that every part may be proportioned to the strength required of it to the same extent as can be done with iron. 2d, it is frequently necessary to use considerable quantities of iron in bolts and fastenings, for putting together a structure of wood requiring great stability. 3d, wood soon loses a portion of its strength by partial decay, and

consequently requires additional strength in the beginning, that it may be safe for a time after decay has commenced.

Hence, but little can be predicted upon the simple general comparisons of wood and iron as to strength and cost, relative to the comparative economy of the two materials for bridge building.

It is only by comparing the results of actual experience, or, where this has not been had, by comparing the results of detailed estimates, upon well matured plans, founded on well established principles, that a satisfactory conclusion can be arrived at.

With regard to wooden bridges, much experience has been had, and the reasonable presumption is, that a good degree of economy has been attained in their construction. But the idea of building iron bridges in this country is of recent date, and but little has been experimentally proved in relation to their cost and qualities.

XXXVI. This much, however, my own experience has demonstrated. Having received Letters Patent for an "Iron Trussed Bridge" upon the general plan of the arched truss shown in fig. 8, and constructed two bridges thereon, over the enlarged Erie canal, (72 and 80 feet span) one of which has been in use six years, it may be regarded as a demonstrated fact, that bridges may be sustained by iron trusses. Also, that the cost, for the above class of bridges, is only about 25 per cent. more than the same class of bridges of wood, as *heretofore built*, under the most favorable circumstances, on the Erie canal. That the iron portion, constituting some ⅓ of the whole as regards expense, in the iron bridge, gives fair promise of enduring for ages, while the wooden structure can only be relied on to last 8 or 10 years.

Upon these facts experimentally established I found the following comparison:

A common road bridge of 72 feet span (the usual length of the enlarged Erie canal) will cost, with iron trusses,	
2000 lbs. of cast iron, 3 cts., . . .	$210
6000 wrought do., manufactured for the work, at 7 cts., ...	420
Timber, labor and painting, ...	230
Superintendence and profit, . . .	80
Whole first cost, ...	940
$175 will renew the perishable part once in 9 years, to produce which, at 5 per cent., will require a capital of . .	320
Total for a perpetual maintenance, .	1260
With wooden trusses fastened with iron, timber, labor, paint and profit, . .	550
2000 lbs. of iron fastenings, . . .	150
Whole first cost, ...	700
(Some have cost $1000 or $1200, and taken 3 to 4000 lbs. of iron.)	
To renew $550 worth of perishable material, once in 9 years, at 5 per ct., compound interest, will require, .	1000
Total for perpetual maintenance, . .	$1700

Showing a clear ultimate saving of $440, in favor of the iron structure.

The reason of the apparent difference between this result and that arrived at (Art. 34) from the general comparison of the cost, etc., of wood and iron is, that the bridges here referred to, have been constructed with a very large amount of iron fastenings, and with large quantities of casing and painting for protection and appearance. Were the comparison confined strictly to the expense of timber work in the sustaining parts of the trusses, the result would be found not to differ so essentially from that of the general comparison.

The above estimate of $700 for the first cost of a 72 feet wooden bridge, though considerably below the average cost of canal bridges of that description, is nevertheless believed to be greatly above the minimum for which bridges may be built, dispensing with parts which are not essential to strength. It is probable that bridges may be built for $500, as about the minimum, of equal strength and convenience, and nearly the same durability as those hitherto built upon the Erie canal enlargement, at a cost of 800 to 1000 dollars. Upon this supposition, which may be regarded as an extreme case in favor of wood, the comparison will stand thus:

First cost of wooden structure, . .	$500
Capital invested at 5 per ct. to produce $500 once in 9 years for renewal, .	909
Total for perpetual maintenance, . .	1409
The same for iron structure as above,	1260
Balance in favor of the iron bridge, .	149

Finally, since theoretical calculation and general comparison show a *probable* advantage, for a long term of time and experience, as far as it has gone, shows a *decided* advantage in favor of iron, it would seem very unwise to discard the latter, without at least a fair trial of its merits. If in the first essays at iron bridge building, the iron bridge had competed so successfully with wooden bridges, improved by the experience of ages, may not the most satisfactory results be anticipated from an equal degree of experience in the construction and use of iron bridges?

XXXVII. Presuming the affirmative to be the only rational answer to the above question, I have arranged the details of plans for carrying into practice the preceding principles and suggestions in the construction of railroad bridges of iron.

I have also made careful detailed estimates of the expense of bridges of different dimensions and in different circumstances, some of the more general results of which I will here state.

In proportioning the parts of a railroad bridge, I have assumed that it may be exposed to a load of 2000 lbs. per foot run, for the whole or any part of its length, in addition to its own weight, and in case of tension, have allowed one square inch cross section of wrought iron for every 10,000 lbs. of the maximum strain produced upon every part by such weights, acting by dead pressure.—In case of thrust, or crushing force, I have allowed one square inch cross section of cast iron for every 12,000 lbs., acting on pieces, (mostly in the form of hollow cylinders,) of a length equal to 18 diameters, and a greater amount of material, where the ratio of the length to the diameter is greater; always having regard to practicability, as well as theoretical proportions, in adjusting the dimensions of the parts.

My estimates made upon these bases have fully satisfied me, that a bridge of 100 feet span, with the track sustained upon the top, will cost about $2000, or $20 per foot, assuming the present prices of iron (1846) in ordinary circumstances. If the track pass near the bottom of the trusses, the expense will be increased two or three dollars per foot.

For a span of 140 feet, by a liberal detailed estimate, I make, in round numbers, a cost of $4000. For 70 feet, I make by actual estimate, and liberal allowances for contingencies, a cost of 900 to 1000 dollars, according to circumstances.

Thus it will be seen, that actual estimate makes the cost of a single stretch of any length, very nearly as the square of the length—as should be expected from the nature of the case.

Hence, knowing the cost of a span of any given length, we readily deduce that of a span of any other length, in simtlar circumstance, with reliable certainty.

These estimates of cost provide for superstructures entirely of iron, except the string timbers to support the iron rail. By the substitution of wooden cross bearers, a considerable saving may sometimes be effected, without incurring serious inconveniences.

But though my investigations have forced upon me the conviction, that in general, where strong and durable bridges are required, iron should be preferred in their construction, still there is a multitude of cases where wooden structures should be preferred, especially in sections of country comparatively new, where timber is plenty and capital scarce; and where improvements must necessarily be of a more temporary character. With this view of the subject, I have given much attention to the details of wooden bridges, and with a good deal of investigation and experiment, have arranged plans which are confidently believed to possess important advantages over the plans generally in use.

I may therefore be excused the expression of a belief, that I might be able to render valuable services to those interested in the construction of important bridges, generally, and with this conviction I make the proffer of my services, wherever they may be desired, for the purpose of fornishing plans, superintending the construction of bridges, either of wood or iron, and in consultation generally in matters pertaining to this, as well as other subjects in Mechanics and Civil Engineering.

I would add that I design shortly to publish, as a sequel to what precedes, should circumstances seem to warrant it, a set of working plans for bridges of different lengths and descriptions, both of wood and iron, with details, specifications, and general remarks.

S. Whipple."

Correspondents will oblige us by sending in their communications by Tuesday morning at latest.

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AMERICAN RAILROAD JOURNAL.

Published by D. K. MINOR, 105 Chestnut St., Philadelphia.

Saturday, June 5, 1847.

Massachusetts Annual Reports.

We give, this week, another of the Massachusetts Annual Reports.

Spanish Railroads.

It is remarkable that there is not in the world, such a thing as a railroad in any country where the Spanish language is spoken, with the exception of those in Cuba, which mainly owe their existence to American enterprize.

Stonington Railroad.

The Directors of the Stonington Railroad Company are about to make application to the City Council of Providence, for permission to bring their road into the city and to establish their depot in the Cove, so as to connect with the Boston and Worcester roads, and form an unbroken railroad communication from Boston to Stonington.

Telegraph Lines in the United States.

The Magnetic Telegraph Lines established in the United States, worked on Morse's plan, comprise an aggregate distance of 1575 miles. The lines under contract and in course of construction, comprise 4974 miles—making an aggregate of complete and unfinished lines of 6549 miles. By the first of January next all these lines will be in active operation.

Toledo.

Toledo is going ahead rapidly, and bids fair to become one of the most important ports on the Lake. Last year she sent forward 160,000 barrels of flour, and 800,000 bushels of wheat. Her enterprizing citizens are making preparations for a still larger business this year. A great number of buildings are now in course of erection, and her shipping is increasing daily.

The New Steamer "Bay State."

An exchange paper noticing this beautiful boat, which has lately been put upon the Stonington route, says that "in her speed she has disappointed her most sanguine friends, having exceeded their expectations altogether. The Oregon admits, for the first time, that she has found a match. The boats left New York at 5 P. M., and continued together until opposite Saybrook light, when the Bay State passed her, continuing about twice her length ahead till the boats entered Fisher's Island sound, where their course changes. The Bay State was built rather for a substantial than a fast boat. Hence her speed is a matter of agreeable surprise. The Oregon did not make her passage by about 30 minutes as quick as on a former occasion, before her immense iron braces were added to her, to strengthen her, and when she had no freight. At this time she had a large freight list.

New Jersey, Hudson, and Delaware Road.

The capital stock of this company, as we learn, from the Newark Advertiser, has been duly subscribed, and it is now prepared to organize under favorable auspices. A respectable association of gentlemen, comprising citizens of Sussex and Essex counties, with capitalists from New York, have subscribed for the stock, and the charter is now in hands which afford a guarantee that its liberal provisions will be employed in advancing the interests and welfare of the districts of New Jersey on the Delaware river, by judicious appropriation of capital. Pennsylvania, especially the part bordering on and in the vicinity of the Delaware, with her great mineral and agricultural resources, is deeply interested in the construction of a railroad avenue to the great commercial emporium, and New York by increasing her supplies of fuel and bread-stuffs from the country will greatly promote her own growth and the wealth of her citizens, and at the same time add to her commerce. Indeed, we can see no good reason why a railroad from the Hudson to the Delaware will not be a main link in a Westward communication extending through Pennsylvania to the great West.

A Curious Safety Lock.

We seldom meet with a more novel and quaint invention than that of a new bank and safe lock invented by Mr. J. Y. Savage, of New York. The lock itself is very simple, having a stout bolt attached to the inside of the door, and which is projected forward by a spring whenever the door is closed, and without the least possible communication with anything outside, no aperture nor even an indication of the situation of the lock. But a simple clock movement is attached to the door inside, and so arranged as to be adjusted to let off a spring at any required hour and minute, on the principle of the common alarm clock; and this spring, when thus liberated, withdraws the bolt inside. But neither the burglar nor the lawful proprietor can possibly obtain access to the interior till the faithful sentinel inside gives the word.

The Northern Railroad.

We learn from the Boston Courier, that the second annual meeting of this Company was held on Wednesday at Concord, N. H. There was a large attendance of stockholders. Charles Theodore Russell, of Boston, a director, made the report. The report states that the road is prosperous, and that the eight assessments which have been made have promptly been paid. The two freshets which occurred in February and April delayed the running of the cars in one instance four, and in the other seven days. The cost of repairs was only about $2500. The road was in an unfinished state. After it is completed and settled down very little damage need be apprehended from freshets. Eighteen miles of the road have been opened, and in four months, from September to May, the receipts were $13,792-97, and the expenses of running $7,685 85. There have been some extra outlays: in ordinary circumstances, the profits would have been equal to 7 per cent. on a cost of $20,000 a mile on that portion of the road.

The remaining portion of the road from Franklin to the River, is in rapid progress and it will be opened to Edson's, in Andover, in July next; to Grafton in August, and to Canaan in October; and the whole to and across the Connecticut River as early as November next. At this time it is expected that the Vermont Central Railroad will be ready for use from the termination of the Northern road to Northfield, a distance of about fifty miles.

The land damages have been nearly all settled. Eight assessments have been laid, which, as already stated, have all been paid. The capital paid in and interest received amount to $1,310,463 74, and the expenditures have been $1,237,745 33, including a dividend of interest to stockholders on their assessments.

After the report had been accepted, a committee was appointed to collect votes for directors for the ensuing year, and the old board, consisting of George W. Nesmith, Charles Theodore Russell, Nathan Carruth, Timothy Kenrick, Francis N. Fisk, Solomon Wildes, and Barnabas B. David, were almost unanimously re-elected. The meeting then dissolved.

Lake Harbor Improvement Convention.

A convention of Delegates, we learn, from the Lake region, the valley of the Mississippi, and New York, will assemble at Chicago on the 5th day of July next, to adopt measures to secure the improvement of the harbors of Lake Erie, Lake Huron, and Lake Michigan. The object of the Convention is of the first importance, not only to those who reside in the vicinity of the proposed improvements, but to the citizens of New York, Boston, and all the commercial cities of the Northern seaboard. We notice that St. Louis, Cincinnati, Pittsburgh, and other principal towns, are appointing large delegations to this Convention. Buffalo chose her delegates some time ago, placing Hon. Millard Fillmore at their head. We trust that our own citizens will not be unmindful of the importance of the occasion, and the manifest propriety of being well represented thereat. It is confidently expected, by the bye, that the Hon. Daniel Webster will be present at the Convention, and lend to its proceedings the weight of his presence and influence.

Sparks from Locomotives.

Mr. S. T. Townsend of Albany, says the Baltimore Sun, has recently invented a new method for disposing of the sparks and smoke from Locomotive Engines, which seems likely to throw all others completely in the shade. The inconvenience arising from the sparks has been one of the most unpleasant features in railroad travel, and to get rid of them completely will be one of the greatest advances towards the perfection of that mode of conveyance. The following is a description of Mr. Townsend's apparatus: A bell muzzle pipe projects horizontally forward of the regular smoke pipe of the engine, and which after its junction with the smoke pipe, extends rear-wards. This front pipe is for the admission of cold air; and the steam from the engine is conducted separate from the smoke, nearly to the junction of the vertical with the horizontal pipes; and then coming in contact with the cold air, it becomes partially condensed, and in its progress to the rear, it keeps the inside of the pipes so moist as to quench all the sparks before they reach the end of the series. The several horizontal pipes are connected to each other by sections of elastic pipes, consisting of India-rubber cloth, peculiarly prepared to withstand the heat, and supported in its position by a helical coil of wire, terminating at each end in a metallic hoop, which is so constructed as to be instantly adjusted and fastened to either end of either of the metallic pipes. The several pipes on any number of cars, are thus connected, or occasionally detached without any trou-

ble or exertion on the part of the brakeman. Each joint or section is furnished with a small water pipe, which passes down the side of the car, for the escape of the water produced by the condensation of steam. Nearly over the safety valve, is a valve opening upward for the immediate escape of the steam when blown off from the boiler. It is proposed to elevate occasionally the rear end of the series of horizontal pipes, thus throwing the smoke upwards.

Railways--Waking Up.

The efforts making to complete, at an early day, a Railway from Niagara River to Detroit, through Canada, begin to excite some attention in Western New York and in New England. A recent convention on the subject has been held in Chautauque County, says the Sandusky Clarion, at which resolutions were unanimously passed, declaring:—

That it is the interest of the people on the southern shore of Lake Erie, to have a continuous Railway connection extending to the Mississippi Valley.

That New York and New England ought not to permit the granaries of the West to be sealed five months in the year, but should aid in opening such communications to the West and South as will secure their trade to the enterprise of the East and North.

That to prevent the trade of the Lakes from being diverted to the Railway through Canada, or to southern channels of commerce, a Railway along the southern shore of Lake Erie to its head, and from thence south west, should be constructed. The first great link to this improvement is a Railway from Buffalo to Erie.

The convention pledge their energies to these improvements, and send a committee to present their views to the New York Legislature now in session, and to ask for a charter to connect Buffalo with Erie, similar to the charter of Pennsylvania from the State line.

Railroads at the East.

The Skowhegan Clarion of last week states that a committee of its citizens are engaged in exploring a route for a railroad from that place to Augusta, by way of West Waterville, and it is expected that an Engineer will be on the ground about the 20th inst., for the purpose of examining the route.

A meeting for the organization of the Newburyport and Georgetown (Mass.) Company was holden in Georgetown, on the 1st inst. A strong feeling was manifested in favor of commencing operations forthwith, and the directors were authorized to make an assessment for the purpose of securing the land and locating the road without delay, if in their opinion it should be desirable, when the subscriptions shall amount to $75,000.

A large and spirited meeting of the stockholders of the Fitchburgh and Worcester Railroad was holden at Leominster on the 14th instant, and the Directors were instructed by a *unanimous* vote, to proceed forthwith to the location and construction of the road. It will run from Fitchburg through Leominster and Sterling villages, and connect with the Worcester and Nashua road in Sterling two miles south of the village. Its whole length will be twelve miles.

We notice that in the Maine Legislature, last week, Mr. Foster of Pembroke offered an order for the appointment of a joint select committee to inquire into the feasibility of a Railroad from Portland through Bangor, Calais and St. Stephens, to the city of St. John, or to some point on the St. John river, with power to collect statistics relative thereto, and to invite the co-operation of citizens of the Provinces.

The Bath Tribune of Monday contains a notice calling a meeting at Lisbon, on the first day of June, at 9 o'clock, A. M., of all persons interested in having a railroad from Bath to Lewiston Falls, and still further into the interior, if thought advisable, to take such incipient measures as may be thought expedient to carry their wishes into effect. The Tribune says "a more important movement, as far as regards Bath and the places on the route, has never been made."

Our friends "down East" are evidently determined not to be outdone by competitors, in the *number* of their railroads, at any rate, and we are assured that the citizens in that region are *in earnest* in these enterprizes. Happy are we to note it.

Railroad Intelligence.

The Commissioners appointed by the Legislature of New Jersey for the purpose of receiving subscriptions to the capital stock of the Summerville and Easton Road, have made arrangements to have the route immediately surveyed and the road located, and have employed engineers for that purpose. The merits of this road are equal, if not superior, to any road now made or contemplated, leading to this city. The road passes through the most thriving and rich parts of New Jersey, and terminates at the borough of Easton, one of the most growing and enterprising towns in Pennsylvania.

We learn that, at a meeting of the Board of Directors of the Baltimore and Ohio Railroad Co. the President was authorized to engage in a final conference with the authorities of the city of Wheeling, and to enter upon an examination of the late law of the Virginia Legislature, granting the right of way through that State, in order to ascertain the practicability of obtaining such present or prospective modifications of the law as would warrant the company in commencing the immediate extension of the road.

The Railroad from Detroit to Kalmazoo is now in successful operation, having improved since it came into the hands of Bostonians.—Workmen are now engaged in grading west of Kalmazoo, and the expectation is to complete the road to Lake Michigan by another year.—The point of termination at the Lake is not definitely settled. It will be either at New Buffalo or St. Joseph. It now takes about 32 hours to go from Detroit to Chicago by this route. The distance is 270 miles, viz: from Detroit to Kalamazoo, by railroad, 146; from Kalamazoo to St. Joseph, by stage, 55; and from St. Joseph to Chicago, by steamboat, 69.

The whole distance from Rochester to Niagara Falls is 81 miles, 26 miles of which road is built and in operation, and only a line of 55 miles remains unfinished, and about one half the stock for that portion of the road has been taken, say $400,000. When the Rochester and Niagara Falls road and the Great Western (Canada) road are finished, it will complete a chain of railroad from Boston to a point in Canada, opposite Detroit, Michigan, and when the Hudson and Harlem road is finished to Albany, it will make a line from New York city to the same point, via Niagara Falls, and through Upper Canada.

The Northern (N. H.) road is to be completed to North Andover, a further distance of 15 miles by July next—making 33 miles from Concord. In the course of the year it is expected it will be complete to the Connecticut river, and on the other side of the river the Central Railroad in Vermont will be finished to Montpelier.—The receipts on the eighteen miles already open, have exceeded $8000 in the last 2 months, equal to 8¼ per cent. per annum, after deducting expenses.

The work on the "Great Western" (Canada) road which was commenced, and suspended in consequence of the agitation of the Oregon question, is now resumed, and it is believed by persons familiar with the subject, that the amount subscribed, $6,000,000, and partly paid in, will far exceed the amount required to finish the work. The Niagara Bridge has been chartered, and the stock to the amount of $200,000 has been taken, which is supposed to be sufficient to complete the work.

After a long delay, which has borne hard on the patience of those immediately interested, a forward movement has been made upon the Concord and Portsmouth road, the ground has been broken, and the road may be now said to be in progress of construction.

The work upon the Rutland (Vt.) Road is going on at four points this side of Mount Holly, and the Mount Holly sections are to be commenced immediately. The sections in Brandon are progressing, and the remainder of the line will be immediately put under contract.

Within the last twelve months the people of the city of New York have subscribed about $7,000,000 to railroad stocks. Boston about $2,000,000; Pittsburgh about $500,000, and Philadelphia about $3,000,000.

The Kennebec Journal expresses a strong conviction that a railroad will be made on the Androscoggin, from Bath to Livermore or Canton,—perhaps further up.

It is now proposed to extend the Fitchburg road into Boston as soon as a convenient site may be secured and depot buildings erected.

The Harlem road has been extended and put in operation to the line of Putnam County.

Magnetic Telegraph Mail.

A highly important arrangement has lately been made with the Southern line of Telegraph. The Postmaster at New Orleans has announced that he will, hereafter, under instructions from the Postmaster General, make up daily a separate bag for the East, in which will be placed all communications intended to be sent to their respective destinations by Magnetic Telegraph from Fredericksburg, Va. The letters so despatched must be addressed to the operator of the Telegraph at Fredericksburg, and the postage and Telegraphic charges are to be paid in advance, at New Orleans.

The aggregate postage and Telegraphic charge for the transmission of ten words from New Orleans to Fredericksburg by mail, and thence to Baltimore by Telegraph, is 70 cents; for the same number of words to Philadelphia 85 cents; to New York $1 10; to Boston $1 60. For twenty words the charge will be:—to Baltimore $1 25; Philadelphia $1 60; New York $2 10; Boston $2 90. For fifty words:—to Baltimore $2 90; Philadelphia $3 85; New York $5 10; Boston $6 80. For one hundred words:—to Baltimore $5 65; Philadelphia $7 60; New York $10 10; Boston $13 30. For all words over one hundred the ratio of charge will be the same as below that number.

A *number* is paid for the same as a *word*. No charge is made for the address, signature, or date, nor for transcribing or delivering the despatch at the place of destination.

Parties wishing to keep their communications secret from the operators can do so by adopting any cypher they may agree upon with their correspondents.

MASSACHUSETTS ANNUAL RAILROAD REPORTS.

Return of the Taunton Branch Railroad Co., under the Act of April 16, 1846.

Capital stock		$250,000
Increase of capital since last report		Nothing.
Capital paid in, per last report		250,000
Capital paid in since last report		Nothing.
Total amount of capital stock paid in		250,000
Funded debt, per last report		Nothing.
Funded debt paid since last report		"
Funded debt, increase of, since last report		"
Total present amount of funded debt		"
Floating debt, per last report		"
Floating debt paid since last report		"
Floating debt, increase of since last report		"
Total present amount of floating debt		"
Total present amount of funded and floating debt		"
Average rate of interest per annum on do.		"

COST OF ROAD AND EQUIPMENT.

For graduation and masonry, per last report	87,859 80	
For graduation and masonry, paid during the year,	Nothing.	
Total amount expended for graduation and masonry		$87,859 80
For bridges, per last report	Nothing.	
For bridges, paid during the past year	"	
Total amount expended for bridges		
For superstructure, including iron, per last report,	86,744 11	
For superstructure, including iron, paid during the the past year	2,626 06	
Total amount expended for superstructure, including iron		89,367 17
For stations, buildings and fixtures, as per last report	36,865 33	
For stations, buildings and fixtures, paid during the past year	6,967 09	
Total amount expended for stations, buildings and fixtures		43,832 42
For land, land-damages and fences, per last report.	30,088 76	
For land, land-damages and fences, paid during the past year	20 00	
Total amount expended for land, land-damages and fences		30,108 76
For locomotives, per last report		
For locomotives, paid during the past year.		
Total amount expended for locomotives.		
For passenger and baggage cars, per last report.		
For passenger and baggage cars, paid during the past year		28,245 91
Total amount expended for passenger and baggage cars		
For merchandize cars, per last report		
For merchandize cars, paid during the past year	628 18	
Total amount expended for merchandize cars		28,874 09
For engineering and other expenses, per last report.	13,406 20	
For engineering and other expenses, paid during the past year		
Total amount expended for engineering and other expenses		13,406 20
Total cost of road and equipment		293,448 44
[Charged off for depreciation of road & equipment]		43,448 44
		$250,000 00

CHARACTERISTICS OF ROAD.

Length of road	11 miles.
Length of single track	11 miles.
Length of double track	None.
Length of branches owned by the company, stating whether they have a single or double track	None.
Weight of rail per yard in main road	58 lbs.
Weight of rail per yard in branch roads	None.
Maximum grade, with its length in main road	29 feet in 3000
Maximum grade, with its length in branch roads	None.
Total rise and fall in main road	123 feet.
Total rise and fall in branch roads	None.
Shortest radius of curvature, with length of curve in main road	800 feet in 1000
Shortest radius of curvature, with length of curve in branch roads	None.
Total degrees of curvature in main road	70 deg.
Total degrees of curvature in branch roads	None.
Total length of straight line in main road	11 miles.
Total length of straight lines in branches	None.
Aggregate length of truss bridges	"
Whole length of road unfinished on both sides	"

DOINGS DURING THE YEAR.

Miles run by passenger trains, [on the main road with company's engines, 20,548; on Bostou and Providence road, with their engines, 30,048		50,596
Miles run by freight trains, [on the main road with the company's engines, 6,886; on the Boston and Providence road, with their engines, 14,976		21,862
Miles run by other trains		1,056
Total miles run		73,514
Number of passengers carried in the cars	117,945	
Number of passengers carried one mile	1,290,951	
Number of tons of merchandize carried in the cars.	25,607 tons 205 lbs	
Number of tons of merchandize carried one mile	281,678 tons 258 lbs	
Number of passengers carried one mile, to and from other roads	767,159	
Number of tons carried one mile, to and from other roads	281,201 tons 104 lbs	
Average rate of speed adopted for passenger trains, including stops	2½ minutes per mile.	
Average rate of speed adopted for freight trains, including stops	3 " "	
Estimated weight in tons of passenger trains, including engine and tender, but not including passengers, hauled one mile	723,030	
Estimated weight of merchandize trains, including engine and tender, but not including freight, hauled one mile	771,239	

EXPENDITURES FOR WORKING THE ROAD.

For repairs of road, maintenance of way, exclusive of wooden truss bridges and renewals of iron	$6,440 25	
For repairs of truss bridges		
For renewals of iron, including laying down.		
For wages of switch-men, gate-keepers and flag-men	398 06	
For removing ice and snow	36 75	
For repairs of fences, gates, houses for flag-men, gate-keepers, switch-men, tool-houses		
Total for maintenance of way		6,775 06

MOTIVE POWERS.

For repairs of locomotives	1,325 33	
For new locomotives to cover depreciation	861 48	
For repairs of passenger cars	303 36	
For new passenger cars to cover depreciation		
For repairs of merchandize cars	390 59	
For new merchandize cars to cover depreciation	499 00	
For repairs of gravel and other cars		
Total for maintenance of motive power		3,379 76

MISCELLANEOUS.

For fuel and oil	4,880 82	
For salaries, wages and incidental expenses, chargeable to passenger department	3,302 67	
For salaries, wages and incidental expenses, chargeable to freight department	4,348 64	
For gratuities and damages	95 08	
For taxes and insurance	11 70	
For ferries		
For repairs of station building, aqueducts, fixtures, furniture, [exclusive of amount charged to the construction thereof	80 62	
For interest		
For amount paid other companies in tolls for passengers and freight carried on their roads, specifying each company, [New Bebford and Taunton, $8,617 35; Boston and Providence, $57,227 04	65,844 39	
For amount paid other companies as rent for use of their roads, specifying each company		
For salaries of president, treasurer, superintendent, law expenses, office expenses of the above offices, and all other expenses not included in any of the foregoing items	2,184 45	
		80,748 37

INCOME DURING THE YEAR.

For Passengers:		
1. On the main road exclusively, including branch owned by company	1,269 56	
2. To and from other roads, specifying what: [New Bedford and Taunton	$35,276 37	
[Fall River	12,815 93	
[Boston nnd Providence	31,964 46	
	80,056 76	
For Freight:		
1. On main road and branches owned by company.	23 31	
2. To and from other connecting roads:	38,916 76	
U: S. mails, $1,299 63. Interest, $951 16. Sale of land, $550	2,800 79	
Total income		123,067 18
Net earnings after deducting expenses	32,163 99	
[Amount charged off during the year, for depreciation of road and equipment	10,241 33	
		21,922 66

DIVIDENDS.

Surplus not divided	1,922 66	
Surplus last year	25,654 52	
Total surplus		27,577 18

ESTIMATED DEPRECIATION BEYOND RENEWALS, VIZ:

Road and bridges	
Buildings	
Engines and cars	

Thomas B. Wales, Samuel Frothingham, Samuel Quincy, John F. Loring and William Crocker—*Directors.*

How to do it.

In a late number of the Cincinnati Gazette we find the annexed editorial, in relation to the failure of those interested to obtain a sufficient amount of subscriptions, to begin the proposed Lexington and Covington railroad. The Gazette says:

"The Licking Valley Register of May 14, states that the subscription books for the stock of this important work were open in Covington on Monday, Tuesday and Wednesday of this week, when the enormous amount of 20 shares of stock were taken, and that by one individual. The Register says: "We have not learned whether books were opened in either Cincinnati or Newport, and we suppose it is a matter of no consequence whether they were or not, for if the same apathy prevailed in those parts that did in Covington, no stock was taken." We are not able to enlighten our neighbor as to either Newport or Cincinnati. But we may be permitted to say to him, that he exhibits in the course of the article from which we have cut the sentence here quoted, a spirit entirely too easily discouraged. "Say no more," he exclaims, about a railroad from Covington to Lexington, "for a quarter of a century!" That is the very way to *make sure* of having nothing done "for a quarter of a century." But it is not the way in which we Cincinnatians got *our* railroad, and the canals and turnpikes that now daily bring to this city the large surplus products of some of the richest valleys in the world. When we made our first failures in these great enterprizes, we *kept on saying*, and at length got to *doing*—and now look at the results! Had we acted in the spirit of our friend of the Register, and as he would lead his readers to act, we should have found Cincinnati at the end of a "quarter of a century," something as Covington now is. But we saw the potency of words as preparatory to deeds, and *kept on talking* for that "quarter of a century," and were then fully prepared to go to work—and our achievements, we may without boasting say, fully vindicate the wisdom of our course.

We hope our friends of Covington and Newport will make up their minds to profit by the example of Cincinnati in this particular, and "do likewise." Our very common school children inculcate better precepts than those of the Register; for we daily hear their free glad voices ringing out the burthen of one of their favorite songs, "*Try, try again!*" And these words we recommend to our too easily discouraged neignbors over the river. You tried a first time some years ago, you have now tried a second time, go to work at it once like men, and "try, try again!" The Mexicans were not driven from Buena Vista by one trial, nor by two, but by many trials by individual commanders, by companies, by detachments, by regiments, by the *whole army* —begun, continued and renewed, till the work was done. Let the Register, and the capitalists of Covington and Newport, and the farmers and graziers along the line of the proposed road, evince something like the spirit of old "Rough and Ready," and his brave indomitable troops, and difficulties will vanish from before them as the, at one time, terrible array of Mexicans vanished from before the Americans at Buena Vista.

We confess, too, much regret at the present failure of our Kentucky neighbors, but we are not much *disappointed*. The charter of the railroad company was not published and generally understood. The fire was not "kept up along the whole line," as it ought to have been. There was hardly a sufficient consultation, ere the opening of the books, as to "times and seasons." And especially was there not enough of the *right sort of work* done before the arrival of the day on which the books were to be opened. People on all such occasions are much more backward in going to the books, than they are in putting down their names when the books are carried to them. *Cincinnati* learnt this a good many years ago; and it is the lesson which Covington and Newport ought to have learnt before the great effort was made. But *we* do not dispair of their road if they do.—Such a channel of transportation is *necessary* from the rich heart of Kentucky to her northern border at the mouth of the Licking, and it will be constructed. We have no doubt of that. But we have just as little, that *hard work* alone can construct it. Another trial must be made, and our neighbors must make it, and they cannot be too soon maturing their plans."

There is much truth, and good sense, in these remarks of the Gazette; and they will apply to others —both companies and *individuals*—as well as the parties here referred to. "*Try, try again*," say we.

Railway Buffers.

Vulcanized India-Rubber Springs.

From the London Mining Journal of April 24.

At the meeting of the Society of Arts, on the 14th inst., a paper was read "On Fuller and De Bergue's Vulcanized India-rubber Springs for Buffers, etc." The application of caoutchoue, or India-rubber, to railway purposes, has of late years occupied more or less, the attention of scientific men. Possessing, as this material does in a very high degree, the properties of flexibility and elasticity united with great tenacity and power of resistance under heavy pressure, its adaptation to various important and valuable purposes in mechanics was too obvious to have escaped notice; yet its liability to become hard and rigid when exposed to severe cold, and on the other hand soft and clammy under the influence of heat, were serious drawbacks to its extensive application; and it was not until very recently that the method of preparing it, by a patented process termed "vulcanizing," has imparted a value and importance to this simple material which is likely to lead to its much more extensive adoption in this and other departments than has hitherto been known. The process referred to (and which is now pretty generally understood) consists principally in the admixture of sulphur and some other ingredients at a high temperature (see Hancock's patent, granted in November, 1843,) by which perfect elasticity is obtained, and non-liability to be affected by any heat or cold of climate. The present invention, for which a patent was granted in October, 1845, is for the application of the material above described for the purpose of buffer and other springs of railway carriages, according to various modes therein specified, and of which we shall now proceed to furnish a description. Instead of the steel springs, as at present, the patentees use a succession of rings or discs of India-rubber of various diameters, from 4 in. to 6 in., according to the position and strength required, and from 1 in. to 2 in. in thickness. These are placed on the buffer-rod which passes through the centre, and are separated by thin iron plates; each plate is provided with a conical collar, which serves to keep the India-rubber firmly in its place, and at the same time admits of free expansion and contraction without coming into contact with the rod.

The advantages attending the use of this material over steel are numerous and striking. In the first place, their weight being scarcely a tenth part of that of steel, they may be placed in any part of the carriage, whilst the saving of weight in a long train (amounting to several tons) will to some extent economize the locomotive powers. Next we have their extreme simplicity, and the impossibility of their being damaged or broken, even in a collision. An opportunity occurred of proving this a few weeks ago, when an engine fitted with these buffers, run off the line near Hull, the iron-work being considerably damaged and broken, but the rings altogether unhurt. Another advantage in these springs is, the greater ease with which they are acted upon at first starting, being at the outset more flexible and yielding than steel; whilst the power accumulates so rapidly under pressure as to prevent the possibility of the buffer-head being brought to a dead hard stop, the benefit of which in concussions is sufficiently obvious. Another important and distinct advantage is the facility with which their power may be regulated. It will be evident, on inspecting one of the larger rings that its power of resistance will be in proportion, first, to its diameter, (or, more strictly speaking, to its superficial area,) and next to the proportion which such diameter or area bears to its thicknesss; thus, a ring of any given diameter or area 3 in. thick, would be much more easily acted on and reduced to half its bulk than one of $1\frac{1}{2}$ in. thick. The convex form taken by the India-rubber being in the latter case much more sudden, and requiring the exertion of nearly double the power. From this it will be at once evident that, by employing a greater number of separating plates in any given distance, you have the power of regulating these springs to the greatest exactness. The patentees state that the price of these springs (including patent right) will not exceed that of steel, but will probably be something less. Several engines and tenders have been fitted with these buffers at Wilson's Foundry, Leeds, and are now in daily successful operation on different lines. Several others are in course of erection at the manufactories of Messrs. Hick & Co., Bolton; Messrs. Sharpe & Co., Manchester; and Messrs. Lawson & Sons, Leeds. Several carriages have also boen in daily use on the Great Western line for some

months past, and are very highly spoken of. Upwards of 50 are being constructed at the works of Messrs. Fox, Henderson, & Co., near Birmingham, for the Marie Antonia Railway, under the superintendence of Mr. Brunel. Experiments, as to the exemption of this material from being affected by the severest frost, have been made by the patentees during the past winter at St. Petersburgh and other parts of the continent, the results of which are quite conclusive. Many of the rings have also been subjected to a pressure of 60 to 100 tons, and reduced to the thickness of 1-16th of an inch without the slightest damage, resuming their shape immediately on the pressure being removed. One of the largest was lately put under Nasmyth's steam hammer, and after receiving more than 200 blows remained equally uninjured. They are also about being applied as bearing springs, both for engines, tenders, and passenger carriages.

REID'S MAGNETIC WIRE.

Patent Dated October 29, 1846. *Specification enrolled April* 29, 1847.

The introduction of the electric telegraph has rendered it an object of greater importance than it ever was before, to obtain wire of great lengths, and of an equal diameter and quality throughout. When Messrs. Cooke & Wheatstone first began their operations, the ordinary weight of iron wire bundles, averaging about 192 feet in lentgh, did not exceed 14 pounds; and it must have taken, therefore, more than 27 such bundles for each mile of telegraph, involving as many risks of failure as there were bundles; for the bundles had to be welded together at the ends, and the united wires were almost always not only thicker at the welds or joints than elsewhere, but more brittle, and very often unsound. By the invention, which is the subject of the present patent, wire can be manufactured in bundles of upwards of 100 lbs. or, indeed, of any required weight or length. It consists, so far, in simply welding together (end to end scarfwise) the rods of iron before they are drawn into wire, and then passing them through the drawing machine, whereby the whole is not only produced of one uniform diameter. but any defects in the welding are instantly detected (through the strain required by the drawing process.)

Another valuable portion of this invention consists in an improved mode of preparing the wire for being coated with zinc, to protect it from oxidation, or, as is commonly termed, being galvanized. Hitherto it has been the practice to cleanse the wire by immersing it, or otherwise subjecting it to the action of sulphuric acid, or nitric acid; and it has been often much injured in structure from the acid not acting equally on all parts of the wire alike, or from some parts being longer exposed to its action than others. Mr. Reid dispenses with the use of acid altogether, and effects the cleansing wholly by mechanical friction. By an ingenious system of machinery, which is described at length in his specification, he cleanses from 6 to 12 lines of wire at a time, and not only with immense rapidity, but with a degree of perfection wholly unattainable by the acid process.

RAILWAY VILLAGES.

We find that this subject is still under consideration in England. We hope it may be carried into operation.

"*Suburban Village Association.* — The prospectus of this company is before us. Its object appears to be the improvement of the poorer classes of London in a manner purely philanthropical. The plan is simply to transfer the homes of the mass of the laboring and mechanic classes from the heart of the metropolis to suburban districts, not more than ten miles distant; railways enabling conveyance therefrom without loss of time or inconvenience. If this extensive plan be carried into effect, the nation will owe another debt of gratitude to the introduction of railways; for it is by the facilities of transit which they afford that the present scheme has been suggested; without railways, the attempt would be hopeless. The association proposes to build villages of good and neat houses, with gardens, and to let them at such rents, that the profits shall not exceed 7½ per cent.; 2½ per cent. of which goes for depreciation, and the remaining 5 per cent. as interest on the money invested. The shares are divided into small denominations, so as to allow the inhabitants, people of moderate incomes, to take them up. Being holders of shares, the inhabitants may, having paid up in cash about an equivalent for its value, get the house he holds transferred to him in lieu of his shares. This is done to enable him profitably and advantageously to invest his savings. The head of each family will possess the right of a free passage over the railway to convey him to and from the metropolis once daily."

ITEMS.

St. Germain Atmospheric.—April 14.—The working of the line was inaugurated, and opened for traffic, and continued all day with the greatest regularity.

The Great Dutch.—On the 13th, a trial was made on the fourth section of the Dutch railway, from the Hague, by way of Delft, to Schiedam, which proved successful, and was remarkable in many respects. Among other circumstances, it was satisfactorily proved that the auxiliary railway has perfectly answered the purpose for which it was inteneed. The train, consisting of nine carriages, passed along the crooked and uneven way, to which perhaps there is no parallel, at a very rapid pace, without meeting with any obstruction. This trial was considered as very important, because the bridge over the Poldevart was used for the first time. As the works which are still necessary to complete the whole line to Rotterdam are but very trifling, we may hope that the whole way, connecting the capital with the second commercial city in the kingdom, will shortly be completed.

The Emperor of Russia is about to beat Mr. Brassey or Mr. Peto as punctual and rapid contractors. His Majesty, it is said, has given orders that the works of the railway from St. Petersburg to Mascow shall be pushed forward with the greatest activity, and that the number of workmen at present employed shall be increased by 50,000 soldiers. It is stated that this line will be entirely completed in the course of the autumn of next year, and perhaps even sooner.

There is a talk of converting into a railway the old Carlisle canal, 11½ miles long, constructed 24 years ago, at a cost of £120,000, and carrying the trade by lighters between Liverpool and Port Carlisle. The directors have had a survey made, and Mr. Errington, the engineer, reports that the conversion may be made advantageously at a cost of £50,000, and the intention appears to be to offer it on lease to some of the contiguous railways.—*Railway Chronicle. April* 24.

Narrow Gauge Speed.—A special train of five carriages was taken from London to Birmingham on Wednesday morning in 2 hours 30 minutes. The actual time of travelling did not exceed 2 hours, being an average speed of 56 miles per hour, the train being stopped four times on the journey, to allow other trains to be clear of the line, besides stopping at Wolverton to change engines.—The engine which started from London, is (No 157) one of Mr. Stevenson's ordinary patent engines, and 21 miles of its journey was performed in 21 minutes. The maximum speed over upwards of a mile was 75 miles per hour. The engine from Wolverton to Birmingham was also a patent engine of Mr. Stevenson's, having three cylinders, and it performed the first part of the journey 41 miles (until it was stopped by another train) in 42m.; maximum speed on this portion of the journey 64 miles per hour. Lord G. Bentinck and several gentlemen going to the Chester races, were in the train. A side wind was blowing throughout the journey. Mr. O'Connell, (the locomotive superintendent) and Mr. Winter (the superintendent of Mr. Stevenson's patent engine) were on the engine, and describe the motion at the highest velocity as being perfectly steady.

German Railways.—The Journal des Debates gives the following as an official return on the general traffic in 1846: "On the 31st Dec., 1846, there were 40 lines, or branch lines, open to circulation in the German states (comprising Austria) giving a total length of railway of 592 German miles, or about 2400 English. Of these lines, 9 exceed in length 90 English miles. The number of passengers conveyed by these aggregate railways, was 16,411,299. Of these, 2,266,000 on the Baden line, from Mannheim to Friburg; 2,150,000 on the lines depaiting from Vienna; 1,900,000 on the Bavarian and Saxon lines; 1,284,000 on the lines starting from Berlin, etc. The transport of goods amounted to 1,591,097 tons; the aggregate receipts were £2,049,233, of which £560,000 was for the transport of merchandize. In 1845, the total receipts did not exceed £1,440,000, and the number of passengers was only 13,000,000. This shows an increased traffic of about 40 per cent. in favor of 1846, which is partly to be attributed to the completion of some of the lines.—*Railway Chron., May* 1.

Cornish Engines.—The number of pumping engines reported this month is 25. They have consumed 2003 tons of coal; and lifted 20,000,000 tons of water ten fathoms high. The average duty of the whole is, therefore, 54,000,000 lbs. lifted one foot high by the consumption of a bushel of coal. The boilers are leaking at Sim's engine Cara Brea. They have had condensing work at South Wheal Florances. At United Mines, Cardoso's engine has leaky boilers. The boilers at United Hills are leaky. The steam pipes are uncovered at North United mines. —*Lean's Engine Reporter, 10th April.*

Railroad Speed.—The Newark Advertiser mentions that the train of cars which left Philadelphia at 4½ o'clock P.M. on Tuesday, reached that city, about 11 miles from New York, a 8 o'clock. At this rate, the whole passage from Philadelphia to New York might be made in about four hours.

Railroad Convention. — Delegates from Ohio, Illinois, and Indiana, assembled in the State House in this city, last Wednesday, to adopt measures in furtherance of the proposed railroad from St. Louis to Cincinnati.

Gov. Bebb, of Ohio, was selected to preside over the deliberations of the convention. On assuming the chair, he stated the object of the meeting in felicitous and appropriate terms.

The sittings of the convention were characterized by a determined desire to do all, possible to be done, to give an impetus to the final consummation of the great object in view. The detailed proceedings will be given in our next.—*Indiana State Journal.*

Accident.—A passenger has informed the New York Tribune, that the train over the Fall River road, from Boston to Fall River, to take the 'Bay State' for New York, came in collision, about half past six on Wednesday evening, when near Stoughton, with the way train for Boston, from Fall River, with such violence as to render the locomotives inseparable, greatly damaging the way train cars, and seriously injuring about a dozen passengers, nearly all of the way train.—Happily, no person was killed. The thro' train was obliged to send 12 miles for a locomotive.

A passenger who came by the train from Boston, informs us that in his opinion, fifty persons were more or less injured. One lady had her face shockingly mangled, while others received greater or less contusions.

The cars of the Baston train were much damaged—the platforms of two were entirely broken to pieces.

Chesapeake and Ohio Canal.—The Cumberland, Maryland, Civilian contains an official announcement of the completion of the negotiations by which the sum of 1,100,000 dollars has been raised to complele the canal to Cumberland. The Barings take 300,000, Boston capitalists 200,000, Virginia 300,000, the contractros 200,000, and Washington, Georgetown and Alexandria 100,000. The Civilian hopes that in their next publication, they will be enabled to announce the arrival of the contractors to commence immediate operations on the line.

BOUND VOLUMES.

Volumes of this Journal, for the Years **1838 to 1846**, *INCLUSIVE, may be had Bound, at Subscription Price, on application at this Office.*

MISSING NUMBERS

OF THE RAILROAD JOURNAL.

Subscribers, who wish to obtain Missing Numbers of Back Volumes of this Journal, will do well to apply immediately.

☞ *One or two* COMPLETE SETS *of the* RAILROAD JOURNAL *may be had in a few weeks—or as soon as two numbers can be reprinted—by application to the Editor.*

NOTICE TO CONTRACTORS.—ANDROSCOGGIN AND KENNEBEC RAILROAD. Proposals will be received at the Railroad Office, in Lewiston, until the 17th of June next, for the Grading and Masonry of the 1st Division of the Road, extending from the Atlantic and St. Lawrence Road in Danville, to Green centre, 14¼ miles.

Also, separately, for the Masonry and Woodwork of the Bridges across the Great and Little Androscoggin Rivers, the Bridges to be constructed on Towne's plan.

Plans and Profiles will be ready for examination, and the route shown, on and after the 10th of June.

Satisfactory surities will be required of bidders unknown to the officers of the company.

The 2d Division, extending to Snow's Pond in Belgrade, 25 miles, will be ready for contract about the 25th of July; and the remainder of the road to Waterville, about the 20th of September.

HOBART CLARK, Agent A. & K. R. R.
EDWARD APPLETON, Engineer.
Railroad Office, Lewiston, May 8, 1847. 4t21

CHAMPLAIN & CONNECTICUT RIVER RAILROAD—Notice to Contractors.—Proposals will be received until the 1st day of June, 1847, for the *Grading, Masonry* and *Bridging* of that part of the Champlain and Connecticut River Railroad, extending from the west side of the summit at Mt. Holly to the Village of Brandon, a distance of about 34 miles, and being the whole uncontracted portion of said road.

Maps, Profiles and Specifications may be found after the 20th of May next at the Office of the Engineer in Rutland, where every necessary information will be given.

The line will be divided in sections of convenient length for construction, and from those to whom the work may be awarded, satisfactory security will be required.

Proposals may be left with the undersigned, at Burlington—with George T. Hodges, Esq., at Rutland—or with William Henry, Esq., at Bellows Falls.

The work will be awarded at Rutland, as soon after the 1st of June, as the necessary examination of the bids can be made. By order of the Board,

T. FOLLETT, President.
Office of the C. & C. R. R. R. Co., Burlington, Vt., April 29, 1847. 3t20

THE SUBSCRIBER has on hand a good assortment of his best Leveling and Surveying Instruments, among them his improved Compass for taking angles without the needle—also Bells, suitable for Churches, Railroad Depots, etc. ANDREW MENEELY.
West Troy, May 12, 1847. 1y*21

PIG AND BLOOM IRON.—THE SUBSCRIbers are agents for the sale of numerous brands of Charcoal and Anthracite Pig Iron, suitable for Machinery, Railroad Wheels, Chains, Hollowware etc. Also several brands of the best Puddling Iron, Juniatta Blooms suitable for Wire, Boiler Plate, Axe Iron, Shovels, etc. The attention of those engaged in the manufacture of Iron is solicited by

A. WRIGHT & NEPHEW,
12tf Vine St. Wharf, Philadelphia.

RAILROAD IRON.—THE "MONTOUR Iron Company," Danville, Pa., is prepared to execute orders for the heavy Rail Bars of any pattern now in use, in this country or in Europe, and equal in every respect in point of quality. Apply to MURDOCK, LEAVITT & CO., *Agents.*
1y48 77 Pine St., New York.

LAWRENCE'S ROSENDALE HYDRAulic Cement. This cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Flooms and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

For sale in lots to suit purchasers, in tight papered barrels, by JOHN W. LAWRENCE,
142 Front street, New York.

☞ Orders for the above will be received and promptly attended to at this office. 32 1y

A. & G. RALSTON & CO., NO. 4 South Front St., Philadelphia, Pa.

Have now on hand, for sale, Railroad Iron, viz:
180 tons 2½ x ½ inch Flat Punched Rails, 20 ft. long.
25 " 2½ x ½ " Flange Iron Rails.
75 " 1 x ½ " Flat Punched Bars for Drafts in Mines. A full assortment of Railroad Spikes, Boat and Ship Spikes. They are prepared to execute orders for every description of Railroad Iron and Fixtures. 1tf

LOCOMOTIVE AND CAR AXLES. The Subscribers are now prepared to receive orders for the well known and approved *Reading Locomotive and Car Axles*—drawn to any required pattern from *Bloom Iron only.* Address

SAM'L KIMBER & CO.,
Willow Street Wharf,
4tf Phiiadelphia, Pa.

RAILROAD IRON.—THE NEW JERSEY Iron Company, Boonton, N. J., are now preparing to make Railroad Bars, and are ready to take orders or make contracts for Rails, deliverable after the first of December next. Apply to

FULLER & BROWN, Agent,
No. 139 Greenwich, corner of Cedar street.
September 18, 1846. 10t39

RAILWAY IRON.—DAVIS, BROOKS & Co., No. 68 Broad Street, have now in port on Ship-board, 200 Tons of the best English heavy H Rails, 60 lbs. to the lineal yard, which they offer for sale on favorable terms, *also*, about 6 to 700 Tons now on the way, to arrive shortly, of the same description of Rail. 46tf

TO CONTRACTORS.—KENNEBEC AND PORTLAND RAILROAD.—Proposals will be received at this office until the 15th of May, for the *Grading and Masonry* of 28 miles of this road, extending from North Yarmouth to Bowdoinham, and the Branch Road from Brunswick to Bath, including the masonry for the Bridges across the Androscoggin, New Meadows and Cathance rivers. The line of road and the plans and profiles will be ready for examination on the 10th of May; after which time any information in relation to the work can be had at this office, or of the Resident Engineers on the line of the road.

Persons unknown to the officers of the company, must accompany their bids with satisfactory evidence of their ability to execute the work.

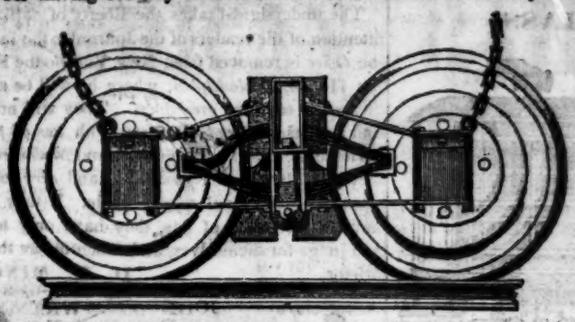
The remainder of the line from Bowdoinham to Angusta, 21 miles, will be ready for contract about the 15th of June; of which due notice will be given.

GEO. S. GREENE, Eng. K. & P. R. R.
ENGINEERS OFFICE, K. & P. R. R.
Brunswick, Me., April 6, 1847. 1m16

THE SUBSCRIBER IS PREPARED TO execute at the Trenton Iron Works, orders for Railroad Iron of any required pattern, and warranted equal in every respect in point of quality to the best American or imported Rails. Also on hand and made to order, Bar Iron, Braziers' and Wire Rods, etc., etc.

PETER COOPER 17 Burling Slip.
1y10 New York.

RAY'S EQUALIZING RAILWAY TRUCK.—THE SUBSCRIBER having recently formed a business connection in the City of New



York, expressly for the manufacture of the newly patented and highly approved Railroad Truck of Mr. Fowler M. Ray, is ready to receive orders for building the same, from Railroad Companies and Car Builders in the United States, and elsewhere.

The above Truck has now been in use from one to two years on several roads a sufficient length of time to test its durability, and other good qualities, and to satisfy those who have used it, as may be seen by reference to the certificates which follow this notice.

There have been several improvements lately introduced upon the Truck, such as additional springs in the bolster of passenger cars, making them delightful riding cars—adapting it to tenders, trucks forward of the locomotive, and freight cars, which, with its original good qualities, make it in all respects the most desirable truck now offered to the public.

Orders for the above, will, for the present, be executed at the New York Screw Mill, corner 33d street and 3d avenue, (late P. Cooper's rolling mills) and at the Steam Engine Shop of T. F. Secor & Co., foot of 9th street, East river, (of which firm the subscriber was late a partner) under the immediat supervision of Mr. Ray himself.

Several sets of trucks containing the latest improvements have recently been turned out for the New York and Erie railroad, and the New Jersey Transportation company, which may be seen upon said roads.

The patronage of Railroad Companies and Car Builders is respectfully solicited.

New York, May 4, 1846. W. H. CALKINS, and Others.

To all whom it may concern:—This is to certify that the New Haven, Hartford and Springfield railroad co., have had in use six sets of F. M. Ray's patent trucks for the last 20 months, during which time it appears to me, they have proved to be the bes and most economical truck now in use.

[Signed,] WILLIAM ROE, Sup't of Power.

I certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Philadelphia and Reading railroad for some time past, under a passenger car.

For simplicity of construction, economy in cost, lightness of material, and extreme ease of motion, I consider it the best truck we have ever used. Its peculiar make also renders it less liable to be thrown off the track, when passing over any obstruction. We intend using it extensively under the passenger and freight cars of the above road.

Reading, Pa., October 6, 1845. [Signed,] G. A. NICOLL, Sup,t Transportation, etc., Philadelphia and Reading Railroad.

To all whom it may concern:—This is to certify that the N. Jersey Railroad and Transportation company have used Fowler M. Ray's Truck for the last seven months, during which time it has operated to our entire satisfaction, I have no hesitation in saying that it is the simplest and most economical truck now in use.

[Signed,] T. L. SMITH,

Jersey City, November 4, 1845. N. Jersey Railroad and Transp. Co.

This is to certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Long Island railroad for the last year, under a freight car.

For simplicity of construction, economy in cost, lightness of material and ease of motion, I consider it equal to any truck we have in use.

Long Island Railroad Depot, Jamaica November 12, 1845. [Signed,] JOHN LEACH, Sup't Motive Power.

1y19

ENGLISH PATENT WIRE ROPES—FOR THE USE OF MINES, RAILWAYS, ETC.—for sale or imported to order by the subscriber.

These Ropes are manufactured on an entirely different principle from any other, and are now almost exclusively used in the collieries and on the railways in Great Britain, where they are considered to be greatly superior to hempen ones, or iron chains, as regards safety, durability and economy. The plan upon which they are made effectually secures them from corrosion in the interior, as well as the exterior of the rope, and gives a greater compactness and elasticity than is found in any other manufacture.

Many of these ropes have been in constant operation in the different mines in England, and on the Blackwall and other inclined planes, for three and four years, and are still in good condition.

They have been applied to almost every purpose for which hempen ropes have been used—mines, heavy cranes, standing rigging, window cords, lightning conductors, signal halyards, tiller ropes, etc. Reference is made to the annexed statement for the relative strength and size. Testimonials from the most eminent engineers in England can be shown as to their efficiency, and any additional information required respecting the different descriptions and application will be given by

ALFRED L. KEMP,
75 Broad street, New York, sole agent in the United States.

Statement of Trial made at the Woolwich Royal Dock Yard, of the Patent Wire Ropes, as compared with Hempen Ropes and Iron Chains of the same strength.—October, 1841.

WIRE ROPES.				HEMPEN ROPES.			CHAINS.		STRENGTH
Wire gauge number.	Circumference of rope.	Weight per fathom.		Circumference of rope.	Weight per fathom.		Weight per fathom.	Diameter of iron.	Tons.
	INCH.	LBS.	OZ.	INCH.	LBS.	OZ.	LBS.	INCH.	
11	4¼	13	5	10	24	–	50	15-16	20
13	3¼	8	3	8¼	16	–	27	11-16	13¼
14	3½	6	11	7½	12	8	17	9-16	10½
15	2¾	5	2	6½	9	4	13½	1-2	7½
16	2½	4	3	6	8	8	10½	7-16	7

N.B. The working load, with a perpendicular lift, may be taken at 6 cwt. for every lb. weight per fathom, so that a rope weighing 5 lbs. per fathom would safely lift 3360 lbs., and so on in proportion. 1y24

THE SUBSCRIBERS, AGENTS FOR the sale of

Codorus,
Glendon,
Spring Mil and
Valley,
} Pig Iron.

Have now a supply, and respectfully solicit the patronage of persons engaged in the making of Machinery, for which purpose the above makes of Pig Iron are particularly adapted.

They are also sole Agents for Watson's celebrated Fire Bricks and prepared Kaolin or Fire Clay orders for which are promptly supplied.

SAM'L. KIMBER, & CO.,
59 North Wharves,
Jan. 14, 1846. [1y4] *Philadelphia, Pa.*

RAILWAY IRON.—THE BEST QUALITY of English Heavy H Rails—60 lbs. to the yard—now in store, landing from the vessel, and on ship board to arrive, for sale on most favorable terms by

DAVIS, BROOKS & CO.,
Jan. 2. [1tf] 68 Broad St., New York.

RAILROAD SCALES.—THE ATTENTION of Railroad Companies is particularly requested to Ellicotts' Scales, made for weighing loaded cars in trains, or singly, they have been the inventors, and the first to make platform scales in the United States; supposing that an experience of 20 years has given a knowledge and superior advantage in the business.

The levers of our scales are made of wrought iron, all the bearers and fulcrums are made of the best cast steel, laid on blocks of granite, extending across the pit, the upper part of the scale only being made of wood. E. Ellicott has made the largest Railroad Scale in the world, its extreme length was one hundred and twenty feet, capable of weighing ten loaded cars at a single draft. It was put on the Mine Hill and Schuylkill Haven Railroad.

We are prepared to make scales of any size to weigh from five pounds to two hundred tons.

ELLICOTT & ABBOTT.
Factory, 9th street, near Coates, cor. Melon st.
Office, No. 3 North 5th street,
1y25 Philadelphia, Pa.

NICOLL'S PATENT SAFETY SWITCH for Railroad Turnouts. This invention, for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design.

It acts independently of the main track rails, being laid down, or removed, without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two Castings and two Rails; the latter, even if much worn or used, not objectionable.

Working Models of the Safety Switch may be seen at Messrs. Davenport and Bridges, Cambridgeport, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained on application to the Subscriber, Inventor, and Patentee

G. A. NICOLLS,
ja45 *Reading, Pa.*

TO RAILROAD COMPANIES AND MANUfacturers of railroad Machinery. The subscribers have for sale Am. and English bar iron, of all sizes; English blister, cast, shear and spring steel; Juniata rods; car axles, made of double refined iron; sheet and boiler iron, cut to pattern; tiers for locomotive engines, and other railroad carriage wheels, made from common and double refined B. O. iron; the latter a very superior article. The tires are made by Messrs. Baldwin & Whitney, locomotive engine manufacturers of this city. Orders addressed to them, or to us, will be promptly executed.

When the exact diameter of the wheel is stated in the order, a fit to those wheels is guaranteed, saving to the purchaser the expense of turning them out inside.

THOMAS & EDMUND GEORGE,
a45 N. E. cor. 12th and Market sts., Philad., Pa.

RAILROAD IRON.—THE SUBSCRIBER'S New Rail Iron Mill at Phœnixville, Pa., is expected to be ready to go into operation by the 1st of September, and will be capable of turning out 30 to 40 tons or finished Rails per day. They are now prepared to receive orders to that extent, deliverable after the 1st of Octobet next, for heavy rails of any pattern now in use, equal in quality and finish to best imported.

PIG IRON.—They are also receiving weekly 150 to 200 tons of No. 1 Phœnix Foundry Iron, well adapted for light castings.

REEVES, BUCK & CO,
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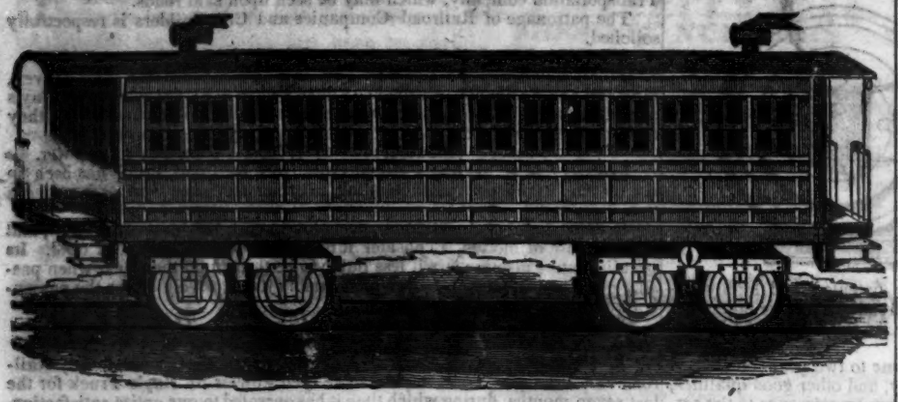
or by their Agent, ROBT. NICHOLS,
28tf 79 Water St., New York.

DAVENPORT & BRIDGES'
CAR WORKS, CAMBRIDGEPORT, MASS.

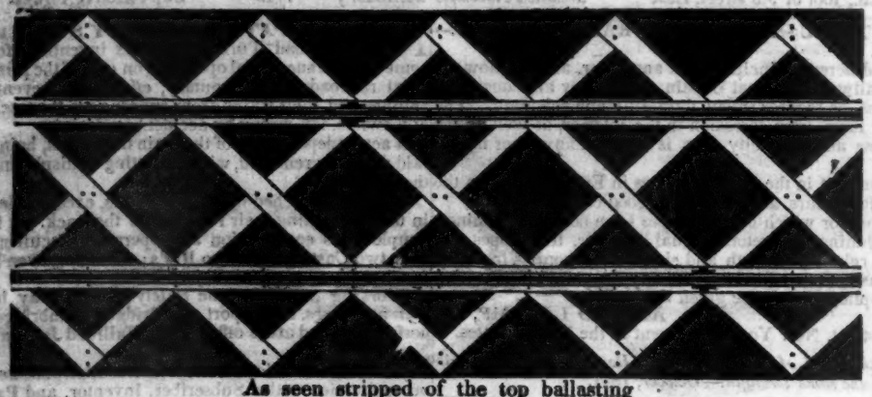


Manufacture to Order, Passenger and Freight Cars of every description, and of the most improved pattern; also furnish Snow Ploughs and Chilled Wheels of any pattern and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices.

All orders punctually executed and forwarded to any part of the country.

Our Works are within fifteen minutes ride from State street, Boston—Omnibuses pass every fifteen minutes. 10tf

THE HERRON RAILWAY TRACK,



As seen stripped of the top ballasting

A GOLD MEDAL AWARDED THE INVENTOR BY THE AMERICAN INSTITUTE.

THE UNDERSIGNED RESPECTFULLY invites the attention of Engineers, and Railroad Companies, to some highly important improvements he has recently made in the Herron system of Railway structure. These improvements enable him to effect a very large reduction in the quantity of Timber, and cost of construction, without impairing the strength of the Track, or its powers of resisting frost, while they secure additional features of excellence in the Drainage and facility of making Repairs.

The above cut represents the "Herron Track" as it is laid on the Philadelphia and Reading, and on the Baltimore and Susquehanna Railroads. The intersection of the sills of the trellis are 5 feet from centre to centre, while in the new construction they are only 2½ feet. This renders the string piece unnecessary, thus removing the only objectionable feature found in the Track.

The result of experience has proved that all Tracks constructed with longitudinal timbers, such as mud sills, and more especially, the continuous bearing string pieces retain the rain water that falls between the Rails, which, being thus confined, settles along those timbers, and accumulating in quantity flows rapidly along them on the descending grades, washing out the earth from under the timber, and frequently causing large breaches in the embankments of the road. Whereas all water intercepted by the oblique sills of the trellis, is discharged immediately into the side ditches.

In the 5 foot plan, the Track occupies a Road bed nearly 11 feet wide, while the new construction takes but 8 feet; the timber being more concentrated under the Rails. A block of hard wood, about 2 feet long and 15 inches wide, is introduced into a square of the trellis for the purpose of giving an additional, and effectual support to the joints of the Rails, which rest upon it. Should these joint blocks become chafed and worn by the working, and imbedding of the chairs, as is now the case on all Railroads, they can be readily replaced without any derangement of the timbers less liable to wear.

The following is a general estimate of its cost near the seaboard. In the interior it will be considerably less.

ESTIMATE OF THE PROBABLE COST OF ONE MILE.

4,224 Timbers, 11 ft. long, 3 x 6 inches = 68,696 ft. b.m., at $10 =	$686 96
587 Oak joint blocks 2 ft. x 3 x 15 in. = 4,403 ft. b.m., at $13 =	57 24
13,000 Spikes = 2,250 lbs. at 4½ cts	101 25
Workmanship free of patent charge	600 00
Cost of one mile including the laying of the Rail	$1,445 45

He has made other important improvements, which will be shown in properly proportioned models, that give a much better idea of the great strength of the Track than a drawing will do.

Sales of the Patent right to all the distant States will be made on liberal terms.

JAMES HERRON,
Civil Engineer and Patentee.
No. 277 South Tenth St., Philadelphia. 33tf

FRANKLIN HOUSE,
No. 105 Chestnut Street, Philadelphia.

The undersigned takes the liberty of calling the attention of the readers of the Journal to the fact that he *Office* is removed from New York to the FRANKLIN HOUSE, *Philadelphia*, where he will be always pleased to *meet* and *greet them*. They will not only find a pleasant *Reading room*, with lots of *foreign* periodicals, treating on *Railroads* and *Machinery*, but they will always find *good-sized* and *airy* rooms—*clean beds*—and a *well supplied* table. If they would have further proof of this, they have only to call, and judge for themselves, and much oblige the proprietor, D. K. MINOR.

ENGINEERS' AND SURVEYERS'
INSTRUMENTS MADE BY
EDMUND DRAPER,
Surviving partner of
STANCLIFFE & DRAPER.

No 23 Pear street, below Walnut,
ly10 near Third, Philadelphia.

LAP—WELDED
WROUGHT IRON TUBES
FOR
TUBULAR BOILERS,
FROM 1 1-4 TO 6 INCHES DIAMETER,
and
ANY LENGTH, NOT EXCEEDING 17 FEET.

These Tubes are of the same quality and manufacture as those so extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers.

THOMAS PROSSER,
Patentee.
1y25 28 Platt street, New York.

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MOUNT SAVAGE IRON WORKS

THIS Company are prepared to execute orders for RAILROAD IRON, of any pattern, and equa in point of quality to any other manufactured.

Address J. M. HOWE,
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ROGERS, KETCHUM & GROSVENOR, Patterson, N. J. (*See Adv.*)
S. VAIL, Speedwell Iron Works, near Morristown, N. J. (*See Adv.*)
NORRIS, BROTHERS, Philadelphia Pa. (*See adv.*)
FRENCH & BAIRD, Philadelphia. (*See Adv.*)
NEWCASTLE MANUFACTURING COMPANY, Newcastle, Del. (*See Adv.*)
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SETH ADAMS, Engineer, South Boston.
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JOHN F. STARR, Philadelphia, Pa.
MERRICK & TOWNE, do.
HINCKLEY & DRURY, Boston.
C. C. ALGER, Stockbridge Iron Works Stockbridge, Mass.